Human resource management and the extension of working lives

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Human Resource Management and the extension of working lives

Examining the role of job demands, job resources, HR practices, and major life events in the maintenance and development of the ability, motivation, and opportunity to continue working

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CHAPTER 1

Introduction

1.1 Introduction

The age structure of the labor force is changing in many Western countries. This is caused by an increase in life expectancies on the one hand and a decline in fertility rates on the other (OECD, 2019; United Nations, 2019). The life expectancy in the Netherlands has increased from 72 years for males and 79 years for females in 1980 to 80 years for males and 82 years for females in 2017 and is expected to grow even further to 86 years for males and 90 years for females in 2060 (Stoeldraijer & Van Duin, 2018). Moreover, fertility rates in the Netherlands have dropped from 1,8 children per female in 2010 to 1,62 children per female in 2017 and are expected to continue decreasing until 2038. Comparable trends are observed in other industrialized countries (Castles, 2003; Kontis et al., 2017).

Due to the abovementioned trends combined with a tendency of older employees to stop working before the official retirement age, there is considerable pressure on the pensions systems of most developed countries (Taylor & Earl, 2016). The percentage of individuals above 65 years old in relation to individuals between 20 and 65 years was 33% in 2018 and is expected to rise to approximately 50% in 2040 (Stoeldraijer & Van Duin, 2018). This means that for every individual of 65 and older who requires pension benefits there are currently three potential employees who pay pension benefits which will decrease to two employees who pay pension benefits by 2040. Furthermore, the changing age structure is expected to result in labor shortages in the near future (Bal, Kooij, & Rousseau, 2015; Earl, Taylor, Roberts, Huynh, & Davis, 2017; Lisenkova, Merette, & Wright, 2013; Schlick, Frieling, & Wegge, 2013). In the healthcare industry alone, a worldwide shortage of 12.9 million people is expected by 2035 (Campbell, Dussault, Buchan, Pozo-Martin, & Arias, 2013). These shortages are already prevalent today in several occupations such as ICT-professionals, with 53% of all EU companies that tried to recruit ICT professionals reporting difficulties to fill their vacancies (Eurostat, 2018).

To deal with the rising costs of retirement and to prevent labor shortages, governments in many developed countries have taken measures (e.g. discouraging early exit from the labor market and increasing the mandatory retirement ages) to stimulate employees to work until a later age (OECD, 2015; United Nations, 2017). This requires organizations to extend the working lives of their older employees and to enable them to maintain their ability and motivation to continue working and provide them with the opportunity to work longer (Kanfer & Ackerman, 2004; Phillips & Siu, 2012). However, traditionally many organizations offered older employees early retirement (Henkens et al., 2017). Furthermore,

few employers take action to actively recruit and retain older employees (Eschtruth, Sass, & Aubrey, 2007; Van Dalen, Henkens, & Schippers, 2009), as they have the perception that older employees are too expensive and less productive than their younger counterparts (Posthuma & Campion, 2009). As governments in many developed countries have started preventing early exit organizations struggle to manage their older employees (Economist Intelligence Unit, 2014). This raises the question of what organizations can do to help extend the working lives of older employees in terms of human resource management (De Lange, Kooij, & Van der Heijden, 2015; Truxillo, Cadiz, Rineer, Zaniboni, & Fraccaroli, 2012). Human Resource Management (HRM) is defined as 'all those activities associated with the management of people in firms' (Boxall & Purcell, 2003, p.1). In this dissertation, I will focus specifically on job characteristics and HR practices, because to date few studies have investigated the effectiveness of job characteristics (e.g. job demands such as physical demands and job resources such as supervisor support) and HR practices for the extension of working lives (Armstrong-Stassen & Ursel, 2009; Truxillo et al., 2012).

Moreover, as people work longer, major life events are more likely to occur during one's working life. Recent literature suggests that maintaining the ability, motivation, and opportunity to continue working might be especially difficult when employees experience major life events (Akkermans, Seibert, & Mol, 2018; De Vos, Van der Heijden, & Akkermans, 2018). This indicates that to extend working lives organizations might need to pay specific attention to employees who face major life events. However, few studies have investigated the influence of major life events on the ability, motivation, and opportunity to continue working. Subsequently little is known on the effectiveness of job characteristics (i.e. job demands and job resources) and HR practices for employees who face major life events. This dissertation aims to fill this gap by examining how organizations can enhance the ability, motivation, and opportunity to continue working of older employees and employees who face major life events through Human Resource Management (i.e. job demands, job resources, and HR practices). This results in the following research question:

To what extent do Human Resource Management, major life events, and their interactions influence the maintenance of the ability, motivation, and opportunity to continue working?

More specifically, this dissertation aims to; (1) integrate knowledge from different disciplines on the extension of working lives, (2) overcome methodological issues in studies on the extension of working lives, (3) examine the impact of major life events on outcomes

related to the extension of working lives, (4) examine the impact of job characteristics on outcomes related to the extension of working lives, and (5) examine the impact of age-related bundles of HR practices on outcomes related to the extension of working lives. First, I will discuss these key issues in further detail while introducing the main concepts of this dissertation (i.e. the extension of working lives, Human Resource Management [i.e. job characteristics and HR practices], and major life events). Second, I will provide an outline of this dissertation.

1.2 Key issues of this thesis

Key issue 1: integrating knowledge from different disciplines on the extension of working lives

Driven by the aforementioned demographic and political trends research on the extension of working lives is expanding rapidly (e.g. De Vos et al., 2018; Kooij, 2015a; Zacher, 2015a). This topic is examined from different disciplines and perspectives such as occupational health psychology (e.g. sustainable employability; Van der Klink et al., 2016), work and organizational psychology (e.g. successful aging at work; Kooij, 2015a; Zacher, 2015a), sociology (e.g. life course perspective; Elder, 1975) and career management (e.g. sustainable careers; De Vos et al., 2018; Van der Heijden & de Vos, 2015). These disciplines are not well integrated and researchers of the different disciplines only make use of one another's insights to a limited extent. Consequently, knowledge of the extension of working lives is fragmented and dispersed. Therefore, I take an overarching perspective by combining the outcomes of different research streams. More specifically, in line with the Ability-Motivation-Opportunity (AMO) framework of Appelbaum, Bailey, Berg, and Kalleberg (2000) I combine outcomes of three of the aforementioned disciplines (i.e. work ability from occupational health psychology, motivation to continue working from work and organizational psychology, and employability from career management) to gain more insight into the extension of working lives. The AMO framework is built upon the belief that organizations can have a positive influence on the performance of their employees by enhancing the degree to which employees have the ability, motivation, and opportunity to perform (Blumberg & Pringle, 1982). In this dissertation, I integrate the different perspectives by using the AMO framework and argue that for employees to extend their working lives, employees should maintain and improve their work ability and work motivation throughout their working lives (De Lange, 2014) and be offered sufficient opportunities to work, also at older ages. In other words, I propose that in order for people to

work until a later age, they need to be able and motivated and be provided with the right opportunities throughout their entire career (Van der Heijden, 2012).

In each of the empirical chapters in this dissertation we use the ability, motivation, and/or opportunity to continue working as outcome variables. Specifically, in Chapter 2 and Chapter 5 we use all three outcomes. In Chapter 3 and Chapter 4 we made use of the secondary database STREAM (Ybema et al., 2014). Unfortunately, the opportunity to continue working could not be examined in these two studies as the STREAM dataset did not include a measure of opportunity that corresponds with our conceptualization. Moreover, of the three outcomes I use in this dissertation the opportunity component is the least controllable by the organization as it is also heavily dependent on labor market trends (Berntson, Sverke, & Marklund, 2006). Finally, in Chapter 6 we only focus on the ability to continue working to get a more in-depth understanding of how major life events influence work outcomes.

Key issue 2: overcoming methodological issues in studies on the extension of working lives

The majority of studies focusing on the ability, motivation, and opportunity to work are based on cross-sectional data (Bohlmann, Rudolph, & Zacher, 2018; De Lange et al., 2015). However, aging at work implies a temporal dimension (Wang et al., 2017) which cannot be captured with cross-sectional data. In order to make recommendations on when Human Resource Management could intervene we first need to conceptualize and examine how the ability, motivation, and opportunity to continue working develop over time.

Furthermore, research on the extension of working lives has predominantly taken a variable-centered approach. The variable-centered approach is the most common approach in the social sciences and describes how two variables relate to each other on average for the entire sample at once (Jung & Wickrama, 2008; Laursen & Hoff, 2006). This technique is based on the underlying assumption that how variables relate to each other is approximately the same for everyone within the research population (Jung & Wickrama, 2008; Laursen & Hoff, 2006). However, previous research with regard to the extension of working lives has demonstrated that as employees age the differences between them become larger (Bal, De Jong, Jansen, & Bakker, 2012; Bohlmann et al., 2018; Greller & Simpson, 1999; Hansson, Robson, & Limas, 2001). Moreover, Morack, Ram, Fauth, and Gerstorf (2013) showed that aging trajectories differ among older individuals. Therefore, it is not likely that common patterns exist and variable-centered approaches cannot provide a good reflection of reality.

Person-centered approaches, on the other hand, enable us to classify individuals in multiple groups that differ based on their aging trajectories. This method is therefore very suitable for addressing research questions regarding group differences in development over time (Laursen & Hoff, 2006). Gaining knowledge on whether subgroups exist in how the ability, motivation, and opportunity to continue working develop over time can provide us with a better understanding of the heterogeneity amongst older employees and allows us to make more specific recommendations for practice (Rudolph & Zacher, 2020).

To address this issue I investigate the development of the ability and motivation to continue working of older employees over a period of 4 years using the STREAM study (Ybema et al., 2014) in Chapter 3 and Chapter 4. In Chapter 3 we used latent growth modeling to create insight in the average development trajectories over time. In Chapter 4 we used growth mixture modeling to determine to which extent different subgroups could be identified in the trajectories of the ability and motivation to continue working. Furthermore, in Chapter 5 we asked participants to make drawings of how the ability, motivation, and opportunity to continue working developed during their career.

Key issue 3: examining the impact of major life events on outcomes related to the extension of working lives

During their working lives employees will face several normative and non-normative life events (Baltes, 1997; Elder, 1975). Specht, Egloff, and Schmukle (2011) distinguish between three types of major life events, namely (1) normative transitions (e.g. getting your first job or marrying), (2) meaningful changes (e.g. receiving a promotion or childbirth), and (3) major individual experiences (e.g. becoming unemployed or the loss of a loved one). These major life events can occur both in private life and at work and can be experienced as positive or negative events. Akkermans et al. (2018) suggest, in line with the Conservation of Resources (COR) theory (Hobfoll, 2001) that if major life events are extraordinary events (i.e. events that are important and unusual to the individual) and highly uncontrollable and/or unexpected they will turn into career shocks and disrupt career outcomes such as the ability, motivation, and opportunity to continue working by causing resource loss cycles. Similarly, the Work-Home Resources model (Ten Brummelhuis & Bakker, 2012) proposes that home demands (i.e. demands caused by major life events in private life) can have a negative impact on work outcomes by depleting one's personal resources. In line with the assumptions of COR theory (Hobfoll, 1989) and the W-HR model (Ten Brummelhuis & Bakker, 2012), (Bakker, Du, & Derks, 2018) found that major life events in the private sphere can result in

the loss of energy and cognitive resources. This loss of resources, in turn, makes it difficult to focus on anything other than the life event (Luhmann, Hofmann, Eid, & Lucas, 2012), thus influencing the ability, motivation, and opportunity to continue working. Furthermore, studies have shown that stressful life events can lead to a variety of physical and psychological health problems (Luhmann et al., 2012). However, studies examining the impact of life events on work outcomes are rare (Bakker et al., 2018; Hakanen & Bakker, 2017). Therefore, this dissertation aims to study how major life events relate to the ability, motivation, and opportunity to continue working.

To address this key issue I conducted a qualitative study to examine how individuals perceive the influence of major life events both in private life and at work on the development of their ability, motivation, and opportunity to continue working (Chapter 5). Furthermore, I conducted a quantitative study to examine to what extent disruptive private life events influenced work ability (Chapter 6).

Key issue 4: examining the impact of job characteristics on outcomes related to the extension of working lives

Truxillo et al. (2012) suggest that job characteristics play an important role in the facilitation of extended working lives. However, as research in the field of the extension of working lives is scattered (see key issue 1) and studies often take a cross-sectional approach (see key issue 2) we know little of how job characteristics influence the ability, motivation, opportunity to continue working overtime.

In line with the Job Demands-Resources (JD-R) model (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) I divide job characteristics into job demands (e.g. physical job demands and working in a noisy work environment) and job resources (e.g. autonomy and social support). Job demands are defined as “physical, psychological, social, or organizational aspects of the job that require sustained physical and/or psychological (cognitive and emotional) effort or skills and are therefore associated with certain physiological and/or psychological costs” (Bakker & Demerouti, 2007, p. 312). Job resources are defined as “physical, psychological, social, or organizational aspects of the job that are either/or functional in achieving work goals, reduce job demands and the associated physiological and psychological costs and stimulate personal growth, learning, and development” (Bakker & Demerouti, 2007, p. 312). The core premise of the JD-R model (Bakker & Demerouti, 2007; Demerouti et al., 2001) is that job demands have a negative impact on a range of employee outcomes as a high level of job demands is expected to cause

a depletion in one's resources resulting in exhaustion (i.e. the health impairment process). Contrarily, job resources are expected to have a positive impact on a range of employee outcomes as they are likely to trigger a motivational process.

To address this key issue I have reviewed the findings of previous studies from a range of different disciplines on the relationship between job characteristics and the ability, motivation, and opportunity to continue working (Chapter 2). Furthermore, I examined how job demands and job resources relate to different trajectories of the ability and motivation to continue working (Chapter 4). Finally, I examined the extent to which job resources can help individuals cope with the negative consequences of major life events on their ability, motivation, and opportunity to continue working (Chapter 5 and Chapter 6).

Key issue 5: examining the impact of age-related bundles of HR practices on outcomes related to the extension of working lives

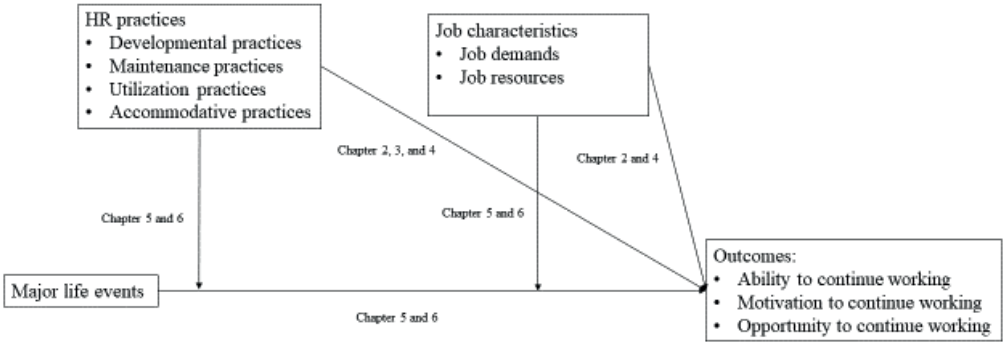
In this dissertation, I am particularly interested in the effect of HR practices as a job resource on outcomes related to the extension of working lives. HR practices are largely overlooked in current research on the extension of working lives (Armstrong-Stassen & Ursel, 2009), although they are assumed to be an important tool through which organizations can influence outcomes related to the extension of working lives (Kooij, Jansen, Dikkers, & de Lange, 2014). Kooij et al. (2014) constructed four bundles of HR practices (i.e. developmental practices, maintenance practices, utilization practices, and accommodative practices) that can help older employees in extending their working lives. First, developmental practices help (older) employees to improve their performance. Examples of developmental practices are training and promotion. This type of practice satisfies the need for growth and development (Kuvaas, 2008). Second, maintenance practices help (older) employees to maintain their performance levels in the face of changes (i.e. the aging process or major life events). Examples of maintenance practices are health checks, compressed workweek, and performance appraisals. This type of practice is focused on security and protection (Gong, Law, Chang, & Xin, 2009) and helps employees to satisfy their maintenance-related goals (Kooij et al., 2014). Third, utilization practices help (older) employees to regain previous levels of performance by making better use of their knowledge, experience, and competences. Examples of utilization practices are mentoring roles and lateral job moves. These practices often make use of lateral development in which straining job demands are replaced by job demands that fit better with the current knowledge, experience, and competences of (older) employees (Zaleska & de Menezes, 2007), thereby satisfying the need for recovery (Kooij et al., 2014). Fourth, accommodative practices help

employees perform at a lower level when changes (e.g. the aging process or major life events) make it (temporarily) impossible to maintain the performance or regain previous levels of performance (Remery, Henkens, Schippers, & Ekamper, 2003). Examples of accommodative practices are demotions, working part-time, and receiving an exemption from overtime or night shifts. This type of practice can help employees regulate the loss of resources (Kooij et al., 2014).

To summarize, based on the classification of Kooij et al. (2014) I divide HR practices into developmental, maintenance, utilization, and accommodative practices. Moreover, based on the JD-R model (Bakker & Demerouti, 2007; Demerouti et al., 2001) I expect that HR practices will have a positive effect on the ability, motivation, and opportunity to continue working. Furthermore, based on COR theory (Hobfoll, 1989) and the W-HR model I propose that these practices are especially important in helping employees cope with the negative consequences of major life events on the ability, motivation, and opportunity to continue working.

To address this key issue I will summarize the findings of previous studies from a range of different disciplines on the relationship between HR practices and the ability, motivation, and opportunity to continue working (Chapter 2). Furthermore, I will examine how developmental, maintenance, utilization, and accommodative HR practices relate to the ability and motivation to continue working (Chapter 3). Finally, I will examine the effectiveness of HR practices on outcomes related to the extension of working lives for employees who are facing major life events in Chapter 5 and Chapter 6.
Figure 1.1 presents an overview of how the different constructs in this dissertation are connected.

Figure 1.1 Research Model



1.3 Outline of the dissertation

In this dissertation, I aim to address the five key issues outlined above. The following chapters will address one or more of these issues. Each chapter builds further on the previous one.

First, in Chapter 2, I report a systematic review of the literature on the relationship between HRM and outcomes related to the extension of working lives. To determine which studies to include in this systematic review and to categorize these studies we combined several existing models on HRM and the extension of working lives. Specifically, we combined a model for conceptualizing HRM (provided by Van Veldhoven and Peccei (2015), bundles of HR practices (provided by Kooij et al., 2014), and a framework for categorizing relevant outcomes relating to the extension of working lives (provided by Van der Heijden (2012). The goal of this review was to contribute to the literature on the extension of working lives by (1) providing an overview of the research designs, conceptualizations, and theories that studies have used to date to examine the effect of HRM on the ability, motivation, and opportunity to continue working and by (2) examining the effectiveness of HRM in relation to the ability, motivation, and opportunity to continue working. This resulted in an agenda for future research that partially guides the remainder of the studies in this dissertation.

In Chapter 3, I present the results of an empirical study in which we used latent growth curve modelling to examine relationships between changes in the use of HR practices and changes in work ability and motivation to continue working over a period of three years. The aim of this study was to contribute to the literature on the extension of working lives by examining how the ability and motivation to continue working of older employees develop

over time and how the use of HR practices is related to the development of the ability and motivation to continue working over time amongst older employees. Based on COR theory (Hobfoll, 1989) and person-environment fit theory (Edwards, Cable, Williamson, Lambert, & Shipp, 2006) we expected that developmental, maintenance, utilization, and accommodative HR practices are beneficial for the ability and motivation to continue working as they provide older employees with valuable resources. We tested our hypotheses on the first four waves of the STREAM data (Ybema et al., 2014). More specifically, we tested our hypotheses amongst 11,545 employees between 45 and 65 years old. Based on this study we can give insight into the stability and change in work ability and the motivation to continue working and how the use of HR practices relates to this. This is important to improve our understanding of the extension of working lives and how organizations can facilitate this.

In Chapter 4, I present the results of a second empirical study. The aim of this study was to contribute to the literature on the extension of working lives by identifying subgroups based on the development of the ability and motivation to continue working over time and examining which job demands and job resources predict group membership. Based on the JD-R model (Bakker & Demerouti, 2007; Demerouti et al., 2001) we expected that high job demands would relate to unfavorable trajectories, whereas we expected that high levels of job resources would relate to favorable trajectories. With the use of growth mixture modeling, we identified different trajectories in work ability and motivation to continue work amongst 5799 employees whose ages ranged between 45 and 65 years old. Similar to Chapter 3 we used the first four waves of the STREAM data (Ybema et al., 2014). Based on this study we can give insight in what type of subgroups exist with regard to their trajectories of work ability and the motivation to continue working and to improve our understanding of how job characteristics relate to these trajectories.

In Chapter 5, I present the results of a qualitative study in which we investigated how major life events, outcomes related to the extension of working lives, and HR practices interrelate. The aim of this study was to examine how individuals perceived the influence of major life events on the development of their ability, motivation, and opportunity to continue working, how organizations responded to this, and how this response, in turn, influenced the ability, motivation, and opportunity to continue working of employees. We conducted 33 retrospective in-depth interviews with employees of 50 years and older. Through this explorative qualitative study, propositions could be formulated regarding the way in which Human Resource Management influences the relationships between major life events and the ability, motivation, and opportunity to continue working. In Chapter 6, we tested several of

the propositions from Chapter 5. More specifically, we examined the relationship between private life events and work ability in an empirical study. Furthermore, we examined the potential moderating role of on-the-job training as well as supervisor support climate on the relationship between private life events and work ability. This was examined amongst 2123 healthcare employees, as the need for the extension of working lives is particularly urgent in the healthcare sector (Campbell et al., 2013). Based on this study we can generate insight into the HR practices and job resources that are effective in overcoming the negative consequences of private life events on work ability.

In Chapter 7, I will provide the main conclusions for the five key issues that are discussed in this dissertation. In addition, I will synthesize and discuss the findings of the previous chapters. Furthermore, I will outline the implications for research and practice and discuss the limitations and suggestions for future research on the extension of working lives. Table 1.1 presents an overview of how the five key issues are addressed in the abovementioned chapters.

Table 1.1 Overview of the chapters in this dissertation

Chapter	Goal and contribution	Study design	Sample	Key issue
1. Introduction	Introducing the theme, relevance, and outline of the dissertation	n/a	n/a	
2. Human Resource Management and the ability, motivation, and opportunity to continue working: A review of quantitative studies	**Identifying** what we already know on the influence of Human Resource Management on outcomes related to the extension of working lives	Systematic literature review	110 studies	1, 4, and 5
3. The influence of Human Resource practices on work ability and the motivation to continue working: a	**Improve our understanding** of the influence of HR practices on outcomes related to the	Latent growth modeling	STREAM data (4-wave study of 12,444 employees of 45 years	1, 2, and 5

latent growth modelling approach	extension of working lives		and older (full panel))	
4. Successful aging at work: the role of work design in growth trajectories of older workers	**Identifying** subgroups of older employees and i**mprove our understanding** of the influence of job demands and job resources on outcomes related to the extension of working lives	Growth mixture modelling	STREAM data (4-wave study of 5,799 employees of 45 years and older (complete panel))	1, 2, and 4
5. The perceived influence of career shocks on one's' career: a qualitative study among older workers	**Exploring** the relation between major life events and outcomes related to the extension of working lives and the ways in which organizations can intervene	Qualitative study	33 retrospective interviews with employees of 50 years and older	1, 2, 3, 4, and 5
6. Private life events and work ability: the effects of on-the-job training and supervisor support climate	**Examine** how private life events influence work ability and the moderating role of on-the-job training and supervisor support climate	Multilevel cross-sectional study	2123 healthcare employees of all ages	3, 4, and 5
7. Discussion	The overall research question will be answered and the implications and limitations will be discussed	n/a	n/a	

CHAPTER 2

Human Resource Management and the ability, motivation, and opportunity to continue working: A review of quantitative studies

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Abstract

Organizations are challenged to retain older workers, however knowledge on how this should be done is scattered. The aim of this paper is to integrate knowledge on the actions organizations can take to facilitate the extension of working lives by identifying and examining the effectiveness of Human Resource Management activities directed at the extension of working lives. To this end a systematic review was conducted, which identified 110 peer-reviewed and unpublished empirical articles concerning the influence of job demands, job resources and Human Resource practices on the ability, motivation, and opportunity to work(ing). The results indicate that offering job resources has a positive effect on the ability, motivation, and opportunity to continue working. Furthermore, work ability was found to be most negatively related with job demands whereas employability was most positively related with developmental practices. The paper concludes by suggesting directions for future research and practical implications to encourage evidence-based practice.

2.1 Introduction

The composition of the workforce is changing due to increased life expectancies and declining fertility rates (OECD, 2015; United Nations, 2017). Older workers are exiting the workforce, often before the official retirement age, and fewer younger workers are available to replace them; this has led to substantial pressure on the pension systems of many developed countries (Taylor & Earl, 2016) and expectations of labour shortages in the near future (Bal, Kooij, & Rousseau, 2015; Ilmarinen, 2005; Ng & Feldman, 2008). To cope with the rising costs of retirement and prevent labour shortages, governments have taken measures to stimulate employees to work until a later age (e.g. increasing mandatory retirement ages and discouraging early exit from the labour market) (OECD, 2015; United Nations, 2017). This challenges organisations to design work in such a way that (older) workers are able to continue working, are motivated to continue working and have the opportunity to do so (Kanfer & Ackerman, 2004; Phillips & Siu, 2012). It is assumed that organisations can achieve this through the use of Human Resource Management (HRM) (Truxillo, Cadiz, Rineer, Zaniboni, & Fraccaroli, 2012; Veth, Emans, Van der Heijden, Korzilius, & De Lange, 2015).

Driven by the abovementioned societal and political trends research interest in the extension of working lives is growing (e.g. Bal et al., 2015; Fisher, Ryan, & Sonnega, 2015). However, numerous outcome measures have been used as indicators for the extension of working lives (Eurofound, 2016; Kooij, 2015b; Zacher, 2015b). For example, the concept of sustainable employability is dominant in Western Europe (Eurofound, 2016), and is often conceptualised as a combination of work ability (i.e. being physically and mentally capable to conduct one's work), competence-based employability (i.e. having the skills and competences to conduct one's work) and vitality (i.e. having the energy and resilience to conduct one's work) thereby mainly focusing on the ability to continue working (Brouwer et al., 2012; De Graaf, Peeters, & Van der Heijden, 2011; Van der Klink et al., 2011). However, the motivation to continue working is more often researched in the United States than in Europe (e.g. Armstrong-Stassen, 2008; Armstrong-Stassen & Ursel, 2009). Other relevant concepts related to the extension of working lives are successful ageing at work, sustainable work, decent work, well-balanced work, good-quality employment and quality of working life (Eurofound, 2016).

Due to this diversity in concepts and outcome measures, present knowledge on the effectiveness of HRM for the ability, motivation, and opportunity to continue working is scattered. This makes it difficult for researchers to make informed decisions about areas that

need future research, and for practitioners to get an overview of which practices or interventions are available and effective to use (Briner & Rousseau, 2011). Furthermore, as demonstrated by De Lange, Kooij, and Van der Heijden (2015) there is little consensus on which theories could be applied in this research field resulting in a large variety of theories used with regard to the extension of working lives. This research field would therefore benefit from a research model that is strongly grounded in (HRM) theory (De Lange et al., 2015). To fill this gap, this paper aims to integrate existing knowledge by creating a framework for analysing studies on the ability, motivation, and opportunity to continue working simultaneously, identifying HR practices that organisations can use to stimulate employees to work longer and examining the effectiveness of these HR practices on the extension of working lives. With this overview, we aim to stimulate evidence-based practice and present an agenda for future research.

To our knowledge no existing (systematic) reviews to date have combined outcomes related to the ability, motivation or opportunity to continue working and examined the effectiveness of HR practices on this broad range of outcomes. Although many previous reviews on this topic have focused on the ability to continue working (e.g. Cloostermans, Bekkers, Uiters, & Proper, 2015; Fadyl, Mcpherson, Schlüter, & Turner-Stokes, 2010; Kuoppala, Lamminpaa, & Husman, 2008; Smith, 2010; Steenstra, Cullen, Irvin, & Van Eerd, 2016; Van den Berg, Elders, de Zwart, & Burdorf, 2009), only a few reviews focused on the motivation to continue working (e.g. Feldman, 1994; Kooij, De Lange, Jansen, & Dikkers, 2008) and the opportunity to continue working (e.g. Wood, Wilkinson, & Harcourt, 2008). These reviews either have not focused on the effect of HRM (e.g. Kooij et al., 2008; Wood et al., 2008) or have focused only on one specific type of HR practice or element of work design (Fadyl et al., 2010; Van den Berg et al., 2009). Whilst acknowledging the value of these earlier reviews we decided to conduct a new systematic literature review in which a broad range of outcomes was included and in which the effectiveness of HRM was specifically addressed. This will result in an overview of current studies from which concrete recommendations can be given to organisations regarding the actions they can take with regard to the extension of working lives and an agenda for future research can be created.

The contributions of this review are threefold. First, this review aims to contribute to the literature on HRM and the extension of working lives (including, but not limited to, the topics of successful ageing at work, sustainable employability and work ability) by combining and reframing existing models on HRM and the extension of working lives to be able to give a complete overview of the available evidence on this topic. This review builds

further on a model for conceptualizing HRM (provided by Van Veldhoven and Peccei (2015)), bundles of HR practices (provided by Kooij, Jansen, Dikkers, and De Lange (2014)) and a framework for categorizing relevant outcomes relating to the extension of working lives (provided by Van der Heijden (2012)).The framework of Van Veldhoven and Peccei (2015) helped to categorize HRM factors as being part of the immediate or distal work context, with the aim to disentangle how different components of HRM influence the extension of working lives. The model of (Kooij et al., 2014) helped to categorize HR practices in bundles that are relevant for the retention of older workers. The framework of Van der Heijden (2012) argues that in order to work longer one has to be able and motivated to do so and have the opportunity, thereby capturing a broad range of outcomes related to the extension of working lives. Although HR research has typically focused on either the ability, motivation or opportunity (to continue working), considering all these outcomes at once provides a broader and more complete picture (Jiang, Lepak, Hu, & Baer, 2012) and allows for the identification of possible conflicting outcomes (Van de Voorde, Paauwe, & Van Veldhoven, 2012). Second, this review aims to contribute to the literature on the extension of working lives by providing an overview of the research designs, conceptualisations and theories that studies have used to date to examine the effect of HRM on the ability, motivation, and opportunity to continue working. This overview provides an image of the available research to date and identifies gaps in knowledge in order to create an agenda for future research. Third, although the body of research on the extension of working lives is growing, it remains unclear how organisations can act to improve the ability, motivation, and opportunity to continue working. This review contributes to the literature by examining the effectiveness of HRM in relation to the ability, motivation, and opportunity to continue working. Furthermore, these insights can be used to stimulate evidence-based practice.

Specifically, the following research questions will be answered:

1. What kind of research is conducted on the relations between HRM and the ability, motivation, and opportunity to continue working?
2. How strong is the empirical evidence regarding the associations between HRM and the ability, motivation, and opportunity to continue working?

The ability, motivation, and opportunity to continue working

A common belief in HR research is that employee performance is a function of an employee's ability, motivation, and opportunity to work (Blumberg & Pringle, 1982). The

Abilities-Motivation-Opportunity (AMO) theory (Appelbaum, Bailey, Berg, & Kalleberg, 2000) builds further upon this premise, proposing that an organisation can positively affect its performance by ensuring that all employees have the ability and motivation to perform their jobs and the opportunity to contribute. When we apply this theory to the extension of working lives, this means that in order for organisations to extend the working lives of (older) workers, HRM should improve and sustain the work ability and work motivation of employees over the course of their working lives (De Lange, 2014) and offer them sufficient opportunities to work, even at a later age. In other words, in order for people to work longer, they need to be able and motivated and be provided with the right opportunities (Van der Heijden, 2012). The framework of Van der Heijden (2012) captures a broad range of outcomes and is therefore considered to be appropriate to give a complete overview of current knowledge on the extension of working lives.

In line with Van der Heijden (2012), this paper argues that in order to be able to continue working, people should have and maintain the physical and mental capacity to do so (i.e. work ability) and should have and maintain the competencies needed to fulfil their jobs or find a new job when needed (i.e. employability). Work ability represents the current ability to continue working, whereas employability represents the future ability to continue working.

Work ability is often defined as the ability of the worker to carry out work given the demands of the work, the health of the worker and his or her mental resources (Ilmarinen, Tuomi, & Klockars, 1997). Previous research has demonstrated that having a low work ability is a predictor of sickness absence (Sell, 2009) and early retirement (Hopsu, Leppänen, Ranta, & Louhevaara, 2005; Sell, 2009). Work ability can be conceptualized as an observed (medical) construct (e.g. the cuttlery wiping performance test; Dellve et al., 2011), as a subjective self-assessment (e.g. McGonagle et al., 2014) or as a combination of subjective self-assessment with objective information on diseases (e.g. the work ability index; Tuomi, Ilmarinen, Jahkola, Katajarinne, & Tulkki, 1998; Tuomi, Ilmarinen, Martikainen, Aalto, & Klockars, 1997). In this review we are interested in each of these conceptualizations as long as they measure work ability or health in relation to the job. Employability is commonly defined as ‘the continuous fulfilling, acquiring or creating of work through the optimal use of competences’ (Van der Heijde & Van der Heijden, 2006, p. 453). Research has indicated that individuals with a high level of perceived employability are able to cope more effectively with the increasingly complex labour market that workers have to deal with nowadays (De Cuyper et al., 2014; Vanhercke, De Cuyper, Peeters, & De Witte, 2014), and are therefore more capable of continuing to work (Van der Heijden, 2012).

Motivation is a broad concept and can be conceptualised as the motivation to work, motivation at work or motivation to continue working until (or even beyond) the retirement age (Kanfer, Beier, & Ackerman, 2013). Motivation at work refers to the cognitions, affect and behaviours that people direct towards job accomplishment, i.e. motivation to perform well at work (Kanfer et al., 2013). Motivation to work refers to the cognitions, affect and behaviours related to participation, i.e. motivation to participate in a work arrangement (Kanfer et al., 2013). Finally, motivation to continue working refers to the intention to work until or beyond the retirement age (Kanfer et al., 2013). This last aspect of motivation is the most relevant for the extension of working lives, as with ageing the motivation to work until or beyond the retirement age becomes more predictive of the actual retirement age than the motivation to work and the motivation at work (Kooij et al., 2008). We therefore focus on motivation to continue working in this study.

The opportunity to continue working refers to opportunities for older workers to find work in the internal and external labour market. Since this review focuses on the effect of HRM, we will limit the scope of the review to factors that influence the opportunity of older workers to continue working in the internal labour market. Although opportunities in the external labour market are also very important when facilitating successful ageing at work, this is not within the control of organizations and therefore falls out of the scope of this review. Similarly to Van der Heijden (2012), the opportunity to continue working is conceptualised as the organisational climate towards working until a later age, which can be measured as either (perceived) discrimination towards older workers in the organisation or (perceived) facilitation of older workers in the organisation. Organizational climate towards working until a later age is defined as 'group members' shared perceptions (Kozlowski & Klein, 2000) of the fairness or unfairness of organizational actions, procedures, and behavior towards different age groups' (Kunze, Boehm, & Bruch, 2011, p. 266). Previous studies have suggested that people who experience a negative climate towards working longer want to retire at an earlier age (Schermuly, Deller, & Büsch, 2014; Snape & Redman, 2003). Although age discrimination can affect workers of all ages, it is most prevalent among older workers (Wood et al., 2008).

Human Resource Management

As previously mentioned it is assumed that organisations can stimulate the ability, motivation, and opportunity to continue working through the use of HRM (Truxillo et al., 2012; Veth et al., 2015). Boxall and Purcell (2003) have broadly defined HRM as 'all those activities associated with the management of people in firms' (p.1). In this review we will

limit these activities to work design (i.e. job demands and job resources) and HR practices. In line with Van Veldhoven and Peccei (2015) work design and HR practices are broken down further as elements that immediately influence the work activities of employees (the proximal or immediate work context) and activities in the distal or wider context. This model was chosen to organize HRM as it allows to get a more detailed overview of how the work context influences work outcomes than traditional HRM models (Van Veldhoven & Peccei, 2015).

The immediate work context consists of all elements that 'are necessary for and/or a direct part of the work activities' (Van Veldhoven & Peccei, 2015, p. 4). These elements could either be physical (e.g. machines or tools) social (e.g. co-workers or clients) or intangible (e.g. orders or scripts). We will consider several job resources and job demands as part of the immediate work context. All job demands that are directly related to the tasks that are performed are considered to be part of the immediate work context in this review, whereas job demands that relate to the work environment are considered to be part of the distal context. An example of such a proximal job demand is physical demands, as these demands directly relate to the tasks that need to be performed. Furthermore, only those resources that immediately influence the tasks that are being performed are considered to be part of the immediate work context in this review. Proximal resources are feedback, learning value of the job, task variety and autonomy.

The distal or wider context is thought to refer to the organizational and societal context in which the work takes place. In this review we will focus specifically on the organizational level. At this level we will examine the effect of job demands that relate to the work environment such as environmental conditions (e.g. noise) and work schedules and job resources that do not directly influence the work tasks such as job security, organizational justice and social support.

In addition to work design this review examines the effect of bundles of HR practices. These HR bundles are a set of interrelated and internally consistent HR practices which are used to achieve a common goal (Guest, Conway, & Dewe, 2004; MacDuffie, 1995). Most studies that have examined HR practices have made use of bundles (Wall & Wood, 2005), as HR practices within a specific bundle are understood to support and enhance one another (Delery, 1998). This review uses a set of HR bundles constructed by Kooij et al. (2014), which specifically focus on the extension of working lives. Although these bundles were originally designed to enhance the motivation to continue working, they are also expected to stimulate the ability and opportunity to continue working. Kooij et al. (2014) have

distinguished between developmental practices, maintenance practices, utilisation practices and accommodative practices. Developmental HR practices are those practices that assist workers in reaching higher levels of functioning. Examples of developmental practices are training, internal promotion and continuous development. Maintenance HR practices are those practices that allow workers to maintain their current levels of functioning despite (age-related) changes. Examples of maintenance practices are health checks, performance appraisals, ergonomic adjustments to the workplace and a compressed work week. Utilisation HR practices make use of the knowledge, experience and competences of older workers, and can be used to help workers return to previous levels of functioning after experiencing a loss. Examples of utilisation practices are job redesign, mentoring roles, participation in decision making, lateral moves and a second career. Finally, accommodative HR practices help workers function at lower levels when maintenance or recovery is no longer possible. Examples of accommodative HR practices are additional leave, demotion, exemption from overtime and partial retirement. Each of these HR bundles is thought to be part of the distal context. Table 2.1 and 2.2 present an overview of all included job demands, job resources and HR practices respectively. Figure 2.1 presents an overview of all included variables.

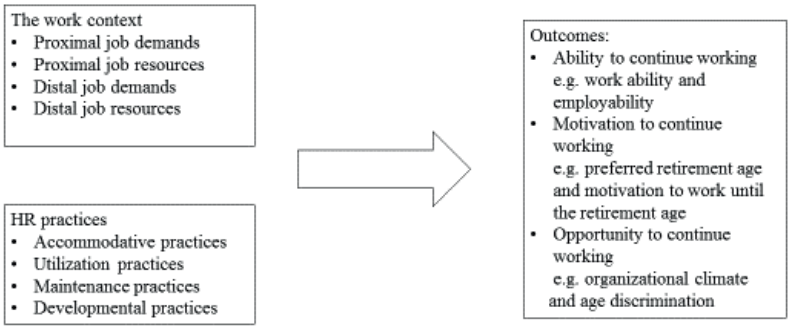
Table 2.1 Overview of the proximal and distal job demands and resources included in this systematic review

Proximal job demands	**Proximal job resources**	**Distal job demands**	**Distal job resources**
Physical demands	Feedback	Quality of the work environment	Job security
Mental demands	Learning value of the job	Work conditions	Organizational justice
Emotional demands	Autonomy	Work schedules	Social support
Workload	Task variety		Leadership
Effort-reward imbalance	Skill discretion		Pay
Demand-control imbalance			Organizational climate

Table 2.2 Overview of the HR practices included in this systematic review (Kooij et al., 2014)

Accommodative practices	**Utilization practices**	**Maintenance practices**	**Developmental practices**
Part-time work/semi-retirement	Lateral job movements	Compressed workweek	Career planning
Additional leave	Participation	Ergonomic adjustments to the workplace	Development on the job
Demotion	Second career	Flexible benefits	Promotion
Early retirement	Task enrichment	Performance appraisal	Training
Exemption from working overtime/night shifts		Pay for performance	
Reduced workload		Teleworking	
Prolonged career interruptions			

Figure 2.1 Conceptual model of the review



2.2 Method

Selection criteria

This systematic literature review focuses on the previously mentioned outcomes related to the ability, motivation, and opportunity to continue working (conceptualised as work ability, employability, motivation to work until or beyond the retirement age and culture towards working longer). Articles were included if (1) they incorporated any of the abovementioned outcomes, (2) they concerned employees in organisations, (3) they tested the effect of an HR practice or work design practice on any of the previously mentioned outcomes, (4) they were peer-reviewed publications and (5) they were written in English. Theoretical and qualitative studies that were identified were not analysed for the results section, as it was not possible to produce any firm conclusions regarding the effectiveness of HR practices. However, they are used to improve the theoretical foundation of this study.

Search strategy

For this systematic review the instructions of Rousseau, Manning, and Denyer (2008) were followed. In line with their suggestions we have formulated a research question that reflects the review's intended use, identified relevant research relevant to answer our research question, organized and interpreted the articles that were identified and synthesized these findings to answer our research question.

This research employed search terms related to the motivation, ability and opportunity to continue working, such as 'work ability' or 'motivation to continue working'. These main search terms related to the first selection criterion. With regard to the second selection criterion, a second set of search terms was created that included terms such as 'employee' or

'worker'. Finally, to comply with the third selection criterion, a set of search terms focused on HRM was created with terms such as 'HR practices' or 'job resources'. A complete overview of the search terms can be found in Appendix 1. The different sets of search terms were combined in the search machines with the Boolean 'AND' and 'OR' operators. These search terms were created based on the concepts identified in the theoretical framework of this article and refined by checking whether these search terms would lead to several key articles that were pre-identified by the authors. Furthermore the search terms were refined throughout the process if too many articles were rejected for similar reasons in an iterative process. For example, when we realized that many of the identified articles focused on other groups of respondents than employees in organizations (e.g. students, unemployed individuals and inmates) we added the search words "employee", "worker" and "professional".

The final search terms were entered in November 2016 in the following electronic databases: PsycINFO, PsycARTICLES, MEDline, Business Source Elite, Web of Science and Science Direct. In each database, the search included only peer-reviewed articles (fourth selection criterion) that were written in English (fifth selection criterion). This initial search resulted in 620 hits in the PsycINFO, PsycARTICLES, MEDline and Business Source Elite databases combined, 707 in Web of Science and 54 in Science Direct. This led to 1381 papers in total, of which 964 were unique papers. Based on an analysis of the abstracts, 355 articles were selected. The main reasons for exclusion were that the sample did not consist of employees in organisations (second selection criterion) or that the article did not consider the influence of HRM (third selection criterion). After reading the full articles, 105 relevant studies were identified and included in the analysis. Furthermore, the abstracts of the past three editions of the European Association of Work and Organizational Psychology (EAWOP) conference, Society for Industrial and Organizational Psychology (SIOP) conference and annual meeting of Academy of Management (AoM) were scanned to identify additional unpublished studies. 24 potential unpublished studies were identified. We emailed the authors of these 24 studies of which six were shared with us. After reading these papers five studies were considered to be relevant for this review. Therefore, five unpublished studies were included, resulting in 110 studies in total, of which the majority (N = 85) concerned the ability to continue working (employability N = 15; work ability N = 70). The remaining studies were categorised as motivation to continue working (N = 20) or opportunity to continue working (N = 5). The first author performed the study selection

independently, but had intensive contact with the other authors during the process. Any article that the first author was uncertain about including was discussed with at least one of the other authors before making a final decision. All authors agreed upon the exclusion criteria the selection of articles before starting the selection process. The selection criteria were easy to apply thereby making the selection process relatively straightforward. This resulted in a very low amount of papers on which the selection criteria were difficult to apply and for which discussion had to take place in order to select them. The articles that are included in this review are marked with an asterisk in the reference list. Figure 2.2 displays an overview of the selected papers after each step in the selection process.

Analysis strategy

The articles selected for this review were first divided into articles that primarily dealt with the ability, motivation or opportunity to continue working. Subsequently, tables were constructed to facilitate the analysis. These tables summarised the articles according to the design of the study (cross-sectional/longitudinal/intervention study), the definition used for the outcome variable, the theory used, the measurement instrument used, the target group, the type of HRM predictor examined, the way this HRM predictor was measured and the effectiveness of this HRM predictor. This was conducted by the first author. However, to improve the reliability of this study the first 50 articles were also coded by the second and third author. This resulted in an inter-rater agreement of 87,15% with the second author and 83,93% with the third author. Discrepancies were thoroughly discussed. These tables can be found as an online appendix to the published article on which this chapter is based.

Due to a lack of appropriate effect sizes in 60 of the included studies, it was not possible to conduct a meta-analysis, even though meta-analyses are considered to be a valuable tool for aggregating research findings (Stone & Rosopa, 2017). Particularly on the relations between different bundles of HR practices and the outcomes few articles were identified. If we were to conduct a meta-analysis we would need to disregard 60 more articles as not all studies report the necessary effect sizes. This would lead to the exclusion of many relevant and valuable articles. Nevertheless, to answer our second research question (“how strong is the empirical evidence regarding the associations between HRM and the ability, motivation, and opportunity to continue working?”) some quantification of evidence is needed, but simply comparing the number of studies with positive and negative outcomes is not considered useful (Van Tulder, Furlan, Bombardier, & Bouter, 2003). In order to avoid ‘vote counting’, the Standardized Index of Convergence (SIC) of Wielenga-Meijer, Taris,

Kompier and Wigboldus (2010) was used, which demonstrates the degree of consistency in findings and can be applied when at least three studies study the same relationship and does not require comparable effect sizes (see also Bernstrøm & Houkes, 2017; Naczenski, de Vries, van Hooff, & Kompier, 2017; Nilsen, Skipstein, Østby, & Mykletun, 2017). This method is therefore more suitable in our research context than a meta-analysis. The SIC demonstrates to what degree findings are consistent across studies, but does not give any indication of the average effect size. The SIC for a specific relationship is calculated by subtracting the number of studies that found a significant negative relationship from the number of studies that found a significant positive relationship, and then dividing this number by the total amount of studies which investigated this relationship, as dictated in the following formula by Wielenga-Meijer et al. (2010):

$$\frac{n[positive] - n[negative]}{n[total]}$$

The SIC ranges from -1 to 1. According to Wielenga-Meijer et al. (2010) values between 0.29 and -.29 indicate that there is an inconsistent effect. Values between .30 and 1 indicate evidence for a positive relationship and values between -.30 and -1 indicate evidence of a negative relationship. However, this does not give any information regarding the strength of the evidence. The strength of evidence is either ‘strong’, ‘moderate’, ‘weak’ or ‘inconsistent’. Strong evidence indicates that the findings are consistent across many studies (e.g. many studies find a negative or positive effect), whereas inconsistent evidence indicates that the findings are dissimilar across studies and no statement regarding the direction of the effect can be made. The strength of the evidence is determined as a combination of the SIC-values and the number of studies that assessed the association, as shown in Table 2.3. For example a SIC level of .50 indicates weak evidence of a positive relationship when three to five studies were found that assess the relationship, however a SIC level of .50 would indicate moderate evidence for a positive relationship if six or more studies were found that assess this relationship.

The SIC formula is applied to each category of work design and HR bundles for the various outcomes (i.e. the ability, motivation, and opportunity). As the minimum amount of studies needed to determine the SIC is three, the formula is also applied to individual practices when three or more studies studied the same relationship. Furthermore, when at least three studies are available per sub-group, differences between age groups are also analysed.

Figure 2.2 Systematic literature search and selection process

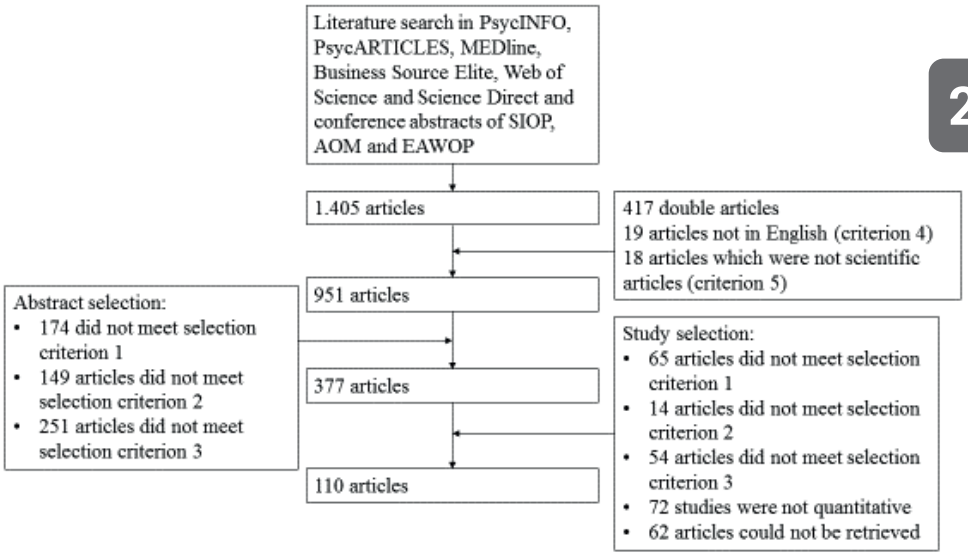


Table 2.3 Strength of the evidence for the relationships studied (Wielenga-Meijer et al., 2010)

	SIC-value				
Number of studies	**1.00 to 0.60**	**0.59 to 0.30**	**0.29 to -0.29**	**-0.30 to -0.59**	**-0.60 to -1.00**
1-2	Insufficient evidence				
3-5	++	+	0	-	--
≥ 6	+++	++	0	--	---

Note. 0 = inconsistent evidence or no evidence, +/- = limited evidence for a positive/negative relationship, ++/-- = moderate evidence for a positive/negative relationship, +++/--- = strong evidence for a positive/negative relationship

2.3 Results

Descriptive information

A total of 110 studies were included for analysis, of which 85 address the ability component (N = 70 for work ability and N = 15 for employability), 20 address the motivation component and 5 address the opportunity component. To address the first research question

("what kind of research is conducted on the relations between HRM and the ability, motivation, and opportunity to continue working?") a description of the studies included in this research will be presented below.

Of the 110 included studies, 64 were based on cross-sectional data or cross-sectional analyses of longitudinal data (58%), 22 were based on longitudinal data (21%) and 23 reported an intervention study (21%). The remaining study was a meta-analysis in which the relation between health promotion and work ability was investigated. It must be noted that all but one of the intervention studies concerned work ability.

A total of 43% of the studies did not define the outcome variable being studied. Definitions were absent in studies on opportunity to continue working (40%), work ability (41%) and motivation to continue working (89%) in particular. However, all articles regarding employability specified a definition. With regard to employability, the definition of Van der Heijde and Van der Heijden (2006) prevailed (54%), and with regard to work ability, the definition of the Finnish Institute of Occupational Health was most prominent (59%). Thus, all articles on work ability that included a definition based it on the definition of the Finnish Institute of Occupational Health.

Just over half of all studies did not use any theory (52%). The theories that were used varied greatly (42 in total, of which 28 were used only once), indicating that there is no consensus on which theory should be applied when examining the influence of HRM on the ability, motivation, and opportunity to continue working. Especially with regard to work ability (67%) and employability (46%) articles lacked theory. Studies on motivation did not include theory in 37% of all studies, whereas all articles on the opportunity to continue working referred to an existing theory. Overall, the JD-R model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) was most frequently used (N = 13), followed by the conservation of resources model (Hobfoll, 1989) (N = 7), the work ability model (N = 5), the job characteristics model (Hackman & Oldham, 1980) (N = 5), the job demand-control model (Karasek, 1979) (N = 4), the job demand-control-support model (Johnson & Hall, 1988) (N = 4) and the social exchange theory (Blau, 1964) (N = 4). Most of the theories (the JD-R model, the job demand-control model, the job demand-control-support model and the job characteristics model) that were applied multiple times can be classified as work design theories and all theories that were applied multiple times can be classified as psychological theories rather than HRM theories. It is important to note that even the JD-R model only featured in 12% of the selected studies; thus, it is not possible to conclude that this theory is widely used in this line of research.

With regard to measurement instruments, 108 (98%) studies used self-evaluations to measure the outcome variable relevant to this review, one study measured work ability with supervisor perceptions and one study performed laboratory tests to measure work ability. A total of 23 studies used self-constructed items to measure the outcome variable (particularly prevalent in studies regarding motivation and opportunity). Over 80% of the studies regarding employability used the scale by Van der Heijde and Van der Heijden (2006), and 91% of the studies regarding work ability made use of the Work Ability Index (WAI) (Tuomi et al., 1998). With regard to the target group, it was notable that most studies were conducted in Scandinavia (N = 32), The Netherlands (N = 33) or other European countries (N = 29). Healthcare (N = 26) was the most commonly studied sector, followed by education (N = 9), construction (N = 8) and industry (N = 5). There were 21 studies that focused on older workers, nine that concerned people on sick leave or with specific conditions and six that specifically considered females.

With regard to the type of HR practices that were included, most focused on some form of work design (N = 244), either in the immediate context (N [demands] = 100, N [resources] = 46) or in the distal context (N [demands] = 26, N [resources] = 69). Maintenance practices (N = 23) were the most frequently included type of HR practice, followed by developmental practices (N = 22), accommodative practices (N = 8) and utilisation practices (N = 3). These HRM measures were most often measured as employee perceptions (N = 48) or interventions in intervention studies in which the effect of a particular intervention (i.e. coaching) was compared before and after the implementation of that intervention (N = 23). Furthermore, seven studies measured HRM as self-rated usage, two studies used management perceptions, one study used objective data to measure job demands and in three studies it was not clear how HRM was measured. Of the remaining studies 14 reported a mix of employee perceptions and employee rated usage of HRM, one study reported a mix of employee perceptions and objective ratings of job demands per job category and one study reported a mix of employee perceptions and interventions. Formal learning opportunities and work schedules were in all cases assessed as self-reported usage.

To address the second research question (“how strong is the empirical evidence regarding the associations between HRM and the ability, motivation, and opportunity to continue working?”) a description will be given of the relations between different HRM predictors and the outcome variables related to the ability, motivation, and opportunity to continue working.

Ability to continue working (work ability)

Proximal job demands and job resources

Strong evidence was found that proximal job demands negatively relate to work ability (SIC = -.77, N = 52). Out of all job demands, only physical demands and effort-reward imbalance have been investigated more than three times. For physical demands, there was strong evidence of a negative relationship with work ability (SIC = -.73, N = 15). With regard to reward-control imbalance, moderate evidence was found for a negative relationship with work ability (SIC = -.80, N = 5). Since many studies have investigated the relationship between proximal job demands and work ability, it was possible to take into account differences between older workers and workers of all ages. It was found that the negative effect of proximal job demands was somewhat stronger in studies that only considered workers aged 45 years and older (SIC = -1, N = 6) in comparison with studies that considered employees of all ages (SIC = -.74, N = 43).

In terms of proximal job resources, strong evidence was found for a positive relationship with work ability (SIC = .73, N = 31). Job control and skill discretion were most frequently investigated. For job control strong evidence was found for a positive relationship (SIC = .76, N = 21). Moreover, moderate evidence was found for a positive relationship between skill discretion (SIC = 1, N = 4) and work ability. Both for workers aged 45 years and older (SIC = 1, N = 4) and workers of all ages (SIC = .75, N = 24) evidence for a positive relationship was found, however much more evidence was available with regards to workers of all ages.

Distal job demands and job resources

Moderate evidence was found with regard to the effect of distal job demands on work ability (SIC = -.59, N = 29). Of all distal job demands, working times were most often investigated. Moderate evidence was found to support a relationship between unfavourable work times (e.g. shift work and working overtime) and work ability (SIC = -.33, N = 9).

Strong evidence was found for a positive relationship between distal job resources and work ability (SIC = .69, N = 32). Social support was most frequently investigated, for which strong evidence of a positive relationship was found (SIC = .63, N = 19). Enough studies were available to examine differences between older employees and employees from all ages. The effect of distal job resources on work ability varied substantially between workers older than 45 years of age (SIC = .50, N = 4) and employees of all ages (SIC = .75, N = 24). However, it must be noted that there were far more studies available on employees of all ages than on older workers.

HR practices

With regard to HR practices, there was moderate evidence of a positive relationship between maintenance HR practices and work ability (SIC = .47, N = 32). Of all maintenance practices, health promotion was investigated most often. A moderate positive effect was found for the relationship between health promotion and work ability (SIC = .50, N = 24). Maintenance practices were assessed as either employee perceptions or interventions. The way maintenance practices were measured did not seem to affect the results. In terms of accommodative practices (SIC = .33, N = 3), there was limited evidence of a positive effect. No evidence for a positive effect was found with regard to utilisation practices (SIC = 0, N = 5). No evidence was found for the effect of development practices on work ability (SIC = .25, N = 4).

Ability to continue working (employability)

Strong evidence was found that developmental practices positively affect employability (SIC = .78, N = 18). Formal learning opportunities were researched most frequently. Strong evidence was found that formal learning opportunities also have a positive effect on employability (SIC = .71, N = 6). In addition, there was strong evidence that both proximal job resources (SIC = .63, N = 8) and distal job resources (SIC = 1, N = 5) positively affect employability.

Motivation to continue working

Proximal job demands and job resources

Moderate evidence for a negative effect was found for the influence of proximal job demands on motivation to continue working (SIC = -.36, N = 22). Physical demands and challenging work were the most commonly researched proximal job demands. For physical demands, there was limited evidence of a negative relationship with the motivation to continue working (SIC = -.33, N = 6), whereas for challenging work, moderate evidence was found of a positive relationship with motivation to continue working (SIC = 1, N = 3). The SIC for the influence of proximal job demands on motivation to continue working increases slightly when challenging work is not considered a proximal job demand (SIC = .42, N = 19). Comparing the relationship between proximal job demands and motivation to continue working for workers of 45 years and older and workers of all ages revealed moderate evidence for a negative effect for older workers (SIC = .33, N = 15), and moderate evidence for a negative effect for workers of all ages (SIC = -.43, N = 7). If challenging work is not considered a job demand, there is strong evidence for a negative relationship between job

demands and motivation to continue working for older workers (SIC = -.50, N = 12). This effect is stronger compared to employees of all ages (SIC = -.43, N = 7).

Moderate evidence was found for a positive relation between proximal job resources and the motivation to continue working (SIC = .47, N = 15). Of all proximal job resources job control was most often investigated. Moderate evidence of a positive relationship between job control and motivation to continue working (SIC = .38, N = 8) was found. The positive effect of proximal job resources was found to be roughly equal for older workers (SIC = .44, N = 9) than for general employees (SIC = .40, N = 5).

Distal job demands and job resources

Moderate evidence for a negative relationship between distal job demands and the motivation to continue working was found (SIC = -.33, N = 6). Work times were most often investigated. No evidence was found for a positive or negative relationship between work times (work schedules and irregular work hours) and motivation (SIC = .0, N = 4).

Strong evidence was found for a positive relationship between distal job resources and motivation to continue working (SIC = .57, N = 14). Social support was researched most frequently. There was strong evidence of a positive relationship between social support and motivation to continue working (SIC = .86, N = 7). The positive effect of distal job resources on motivation to continue working is somewhat stronger for older workers (SIC = .63, N = 8) than for workers of all ages (SIC = .50, N = 6).

HR practices

With regard to HR practices, moderate evidence was found for a positive relation between developmental practices and motivation to continue working (SIC = .44, N = 9). There was insufficient evidence found for the other bundles (utilisation, accommodative and maintenance practices), although utilisation (N = 1) and accommodative (N = 2) practices did have a positive effect.

Opportunity to continue working

Moderate evidence was found for a positive association between distal job resources (e.g. organizational climate and supervisor support) and the opportunity to continue working (SIC = 1, N = 3). Although a positive association was also identified between utilization practices and opportunity to continue working (SIC = 1), there was insufficient evidence (N = 2) to draw conclusions. Table 2.4 to Table 2.7 provide a complete overview of the results.

Table 2.4 Overview of the effect of proximal job demands

	Ability		Motivation	Opportunity
	Work ability	Employability		
Proximal job demands	---	i.s.	--	n.e.
- Challenging work	n.e.	n.e.	++	n.e.
- Physical demands	---	n.e.	-	n.e.
- Effort reward imbalance	--	n.e.	n.e.	n.e.

Note. n.e. = no evidence, i.s = insufficient evidence, 0 = inconsistent evidence, + (-) = limited evidence for a positive (negative) relationship, ++ (--) = moderate evidence for a positive (negative) relationship, +++ (---) = strong evidence for a positive (negative) relationship

Table 2.5 Overview of the effect of proximal job resources

	Ability		Motivation	Opportunity
	Work ability	Employability		
Proximal job resources	+++	+++	++	n.e.
Job control	+++	n.e.	++	n.e.
Skill discretion	++	n.e.	n.e.	n.e.

Note. n.e. = no evidence, i.s = insufficient evidence, 0 = inconsistent evidence, + (-) = limited evidence for a positive (negative) relationship, ++ (--) = moderate evidence for a positive (negative) relationship, +++ (---) = strong evidence for a positive (negative) relationship

Table 2.6 Overview of the effect of distal job demand and job resources

	Ability		Motivation	Opportunity
	Work ability	Employability		
Distal job demands	--	n.e.	--	n.e.
- Work times	--	n.e.	0	n.e.
Distal job resources	+++	+++	+++	++
- Social support	+++	n.e.	++	n.e.

Note. n.e. = no evidence, i.s = insufficient evidence, 0 = inconsistent evidence, + (-) = limited evidence for a positive (negative) relationship, ++ (--) = moderate evidence for a positive (negative) relationship, +++ (---) = strong evidence for a positive (negative) relationship

Table 2.7 Overview of the effect of HR practices

		Ability	Motivation	Opportunity
	Work ability	Employability		
Developmental practices	0	+++	++	n.e.
- Formal learning opportunities	n.e.	+++	n.e.	n.e.
Maintenance practices	++	i.s.	i.s.	n.e.
- Health promotion	++	n.e.	n.e.	n.e.
Accommodative practices	+	n.e.	i.s.	n.e.
Utilisation practices	0	n.e.	i.s.	i.s.

Note. n.e. = no evidence, i.s = insufficient evidence, 0 = inconsistent evidence, + (-) = limited evidence for a positive (negative) relationship, ++ (--) = moderate evidence for a positive (negative) relationship, +++ (---) = strong evidence for a positive (negative) relationship

2.4 Discussion

Overview

This paper aimed to build a new model to examine current studies that focused on the relation between HRM and the ability, motivation, and opportunity to continue working and identify proximal and distal HR practices through which organisations can effectively stimulate the extension of the working lives of employees. A systematic literature review was conducted in which 110 peer-reviewed and unpublished empirical articles were identified that concerned the influence of HRM on the ability, motivation, and opportunity to (continue) work(ing). The most important finding was that (both proximal and distal) job resources have a positive effect on the ability, motivation, and opportunity to continue working.

Contributions to the literature

This systematic literature review contributes to the literature on the extension of working lives in three ways. First, it presented a new framework for organizing research on the relation between HRM and the extension of working lives by combining previous work of Van Veldhoven and Peccei (2015), Kooij et al. (2014) and Van der Heijden (2012) to provide a complete overview of current knowledge on the extension of working lives. Second, we provided an overview of the research designs, conceptualisations and theories that studies have used to examine the effect of HRM on the ability, motivation, and opportunity to continue working. Third, this review contributes to the literature by examining the effectiveness of HRM on the ability, motivation, and opportunity to continue working. Below we will discuss each of these three contributions in more detail.

Contribution 1: combining previous work

As mentioned above, the first contribution of this review was to combine the work of Van Veldhoven and Peccei (2015), Kooij et al. (2014) and Van der Heijden (2012) to provide a complete overview of current knowledge on the extension of working lives. First, the outcomes related to the extension of working lives were operationalized as the ability, motivation, and opportunity to continue working based on the framework of Van der Heijden (2012). This helped to distinguish some indication of inconsistent effects of HRM on these different outcome measures. Specifically, work times had a negative effect on work ability, but the effect of work times on motivation was inconclusive. Furthermore developmental practices had a positive effect on employability and motivation but inconclusive evidence was found with regard to the relation between developmental practices and work ability. It could be that developmental practices temporarily increase job demands (Veth et al., 2015) which leads to mixed evidence with regards to work ability. Further, in general, proximal job demands appear to have a negative effect, but challenging work has a positive effect (at least on motivation) and seems to act more as a resource than a demand. This is consistent with LePine, Podsakoff, and LePine (2005), who distinguished between challenging and hindrance demands and determined that there is a positive effect of challenging demands and a negative effect of hindrance demands. Schaufeli and Taris (2014) consequently classify challenging demands as resources rather than demands.

Furthermore, the model by Van Veldhoven and Peccei (2015) helped to categorize HR practices and job characteristics as being part of the immediate or distal work context. This has revealed that splitting job demands into proximal and distal job demands may provide a more nuanced picture than when all demands are treated as one overarching

construct. Proximal job demands were found to have a negative effect on work ability, whereas inconclusive evidence was found for the effect of distal job demands on work ability. Conversely, inconclusive evidence was found for the effect of proximal job demands and motivation, whereas distal job demands were found to have a negative effect. With regard to job resources on the other hand it did not seem to matter much whether they were proximal or distal for any of the outcome variables. The model by Van Veldhoven and Peccei (2015) was supplemented by the HR bundles of Kooij et al. (2014). The bundling of HR practices as suggested by Kooij et al. (2014) helped to draw some conclusions about the few studies on HR practices that were available.

Contribution 2: overview of the current state of the research field

The second contribution of this research is that we provided an overview of the research designs, conceptualisations and theories that studies have used to examine the effect of HRM on the ability, motivation, and opportunity to continue working. It appears that research on the extension of working lives is still in its early stages. Most studies were cross-sectional, and half of the studies were not based on theory. Among the studies that did use theory, no leading theory could be identified. Approximately 40% of the studies did not provide a conceptualisation of the main outcome variable, and just over 20% of the studies used self-constructed items to measure the outcome variable. Furthermore, 53% of the studies did not use any theory.

Contribution 3: examining the effectiveness of HRM on the extension of working lives

The third contribution of this review is the examination of the effectiveness of HRM on the ability, motivation, and opportunity to continue working. The findings reveal that work ability is influenced most negatively by proximal job demands (especially physical job demands). Distal job demands, on the other hand do not seem to influence work ability much. Furthermore, work ability is most positively influenced by proximal as well as distal job resources (especially job control and social support). Employability is influenced most positively by developmental practices (different forms of formal and informal learning). Just like work ability, motivation is influenced most positively by distal job resources (especially support) and most negatively by proximal and distal job demands (when challenging work is excluded). Job resources positively influence opportunity to continue working. It is not yet possible to establish general conclusions about the effectiveness of HR practices that are most influential, as different predictors were studied for the different outcome measures. However,

overall, it seems that offering job resources has a positive effect on the ability, motivation, and opportunity to continue working.

Limitations

Some limitations should be noted. First, we were not able to conduct a meta-analysis as too many studies would need to be omitted because they do not report appropriate effect sizes. Second, since not all predictors were studied in relation to all the outcome measures, it is difficult to develop overall conclusions or detect possible inconsistent effects. For example, some indication was found of an inconsistent effect for job demands on work ability and motivation, but more research is needed to examine this relationship. Third, 86% of the studies included in this review were conducted in the European Union, thereby limiting the generalisability of these findings. Finally, over half of the studies included were based on cross-sectional data, thus restricting the possibility to infer causality.

Recommendations for future research: A research agenda

The findings of this study suggest that there is still substantial work to be done with regard to research on the relation between HR practices and the ability, motivation, and opportunity to continue working. Accordingly, we propose seven suggestions for future research, which are outlined below. In the first section we will focus on the shortcomings we identified when describing the included studies in general and recommendations to overcome these issues. In the second section we will focus on the research gaps that were identified when we created an overview of the effect of job design and HR practices on the ability, motivation, and opportunity to continue working.

General shortcomings of studies on the extension of working lives

First, researchers working on this topic should define the outcome variables they use, and should employ more longitudinal panel studies to investigate the nature and direction of the cross-lagged relations across time (De Lange, Taris, Kompier, Houtman, & Bongers, 2003). It is recommended that researchers use the conceptualisation of the Finnish Institute of Occupational Health for work ability (Ilmarinen et al., 1997) and the conceptualisation of Van der Heijde and Van der Heijden (2006) for competence-based employability, as these scales have been tested for their reliability and validity in relation to other concepts, and the articles included in this review used these definitions and scales most frequently. With regard to motivation to continue working and opportunity to continue working, no popular definition emerged in the analyses; however, we suggest to use the definition of Kanfer et al. (2013) for motivation to continue working and of Kunze et al. (2011) for culture towards working

longer (indicators of opportunity to continue working), as used in this review as these definitions give a clear and concise description of the relevant constructs. Second, researchers should employ more longitudinal panel studies to investigate the nature and direction of the cross-lagged relations across time (De Lange, Taris, Kompier, Houtman, & Bongers, 2003). 59% of the studies included in this review were based on cross-sectional studies. In order to imply causality, longitudinal and intervention studies are needed to advance the field.

Third, researchers studying the effect of HR practices on the extension of working lives should base their hypotheses on theoretical approaches. We propose researchers should use the JD-R model in combination with the AMO framework (Kooij & Van de Voorde, 2015), as this review has done. However, building further upon the model this review has investigated, future research should examine whether distal HR practices influence the ability, motivation, and opportunity to continue working through their effect on work design (e.g. proximal HR practices), as Kooij et al. (2014) have suggested. Developmental practices for example could influence the ability, motivation, and opportunity to continue working by increasing job demands and job and personal resources (e.g. participating in a training can increase self-efficacy [personal resource], but at the same time increase job pressure [job demand]). In this review, it was not possible to test such a mediation model, as this would severely limit the amount of studies that could be included.

Fourth, the majority of the studies assessed employee perceptions of HR practices rather than interventions or employee rated usage of HR practices. However, giving recommendations to practitioners on how to extend working lives is rather difficult based on employee perceptions of practices as no insight is given in how these perceptions could be changed. Based on intervention studies and employee rated usage of HR practices, on the other hand, concrete recommendations can be given on which practices need to be implemented.

Research gaps with respect to the relation between HRM and the extension of working lives

When we analyse Table 2.4 to 2.7 we see that up to now the research focus has been much more on (both proximal and distal) resources and demands rather than on HR practices. Therefore, we recommend researchers not only to evaluate work design, but also test for associations with HR practices to allow for more conclusive advice to be given to practitioners. Specifically, researchers are recommended to examine the effects of accommodative, utilisation, maintenance and development bundles. Furthermore, of the 110 studies included in this review, 70 focused on work ability, while only 15 focused on employability, 20 on motivation and 5 on opportunity. Therefore, more research is needed on

which actions organisations can take to improve employability, the motivation to continue working and especially the opportunity to continue working. Moreover, in this review we have limited ourselves to the opportunity to continue working in the internal labour market, whereas for policy formulation the opportunity to continue working in the external labour market is also relevant. Hence, we urge researchers to examine what policy makers can do to facilitate the opportunity to continue working in the internal as well as the external labour market.

Practical implications

This review aimed to stimulate evidence-based practice by giving insight in the areas in which most evidence exist. We suggest that organizations that want to improve the sustainability of the careers of their employees start by assessing the current level of ability, motivation, and opportunity to work their employees have. Based on this assessment the organization can identify which area needs attention. Next, this review can be used to identify the actions that could be taken in order to stimulate this specific component. First, with regard to work ability proximal job demands were found to have a negative influence. In order to improve work ability HR practitioners must make sure that there is sufficient balance between job demands and job resources, by either lowering job demands or providing sufficient resources to help employees deal with high job demands. Furthermore, utilization practices can be used to exchange different types of job demands to make sure the work fits the abilities of the worker. When exchanging job demands is not possible accommodative practices can be used to lower the level of job demands when job demands are causing decreases in the ability, motivation, and opportunity to continue working. Second, with regards to employability developmental practices were found to have a positive influence. Thus in order to keep persons employable HR practitioners should provide developmental opportunities regardless of the age of employees. Unfortunately, older employees are less likely to receive training compared to their younger counter parts (Canduela et al., 2012; Karpinska, Henkens, Schippers, & Wang, 2015; Lazazzara, Karpinska, & Henkens, 2013) which appears to be counterproductive for the retention of older workers. Finally, motivation was found to be influenced negatively by proximal and distal job demands, but positively by challenging work. HR practitioners and managers could stimulate job crafting of employees so that they can reshape hindering job demands into challenging demands and thereby increase their motivation to continue working. When organizations do not have the resources to measure the current level of ability, motivation, and opportunity to work before taking deliberate actions, but want to improve nonetheless they can focus on improving the level of

(proximal as well as distal) job resources. This review has demonstrated that having (both proximal and distal) job resources has a positive effect on the ability, motivation, and opportunity to continue working and improving these is therefore a good starting point for working on the extension of working lives for any organization. An example of a proximal job resource is autonomy and an example of distal job resource is supervisor support. Autonomy could be stimulated by implementing self-managing teams or employee empowerment (Parker, Williams, & Turner, 2006). Supervisor support can be stimulated by supervisors by showing personal consideration, asking how they can assist employees in doing their job better and making sure that work procedures are perceived as fair (Maertz, Griffeth, Campbell, & Allen, 2007). Hence, we urge HR practitioners to ensure that workers have sufficient resources (such as supervisor support and autonomy), especially at a later age. HR practitioners can use these insights to improve their policy for the extension of working lives. However, additional research is needed for a more thorough understanding of the effects of HR practices on outcomes related to the extension of working lives.

CHAPTER 3

The influence of Human Resource practices on work ability and the preferred retirement age: a latent growth modelling approach

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Abstract

Organizations are challenged to extend working lives of older workers. However, there is little empirical evidence available on how organizations should do this. This study aims to fill this gap by testing the effect of HR practices on perceived work ability and the preferred retirement age. Based on the Conversation of Resources theory we expected that the use of HR practices has a positive effect on perceived work ability and preferred retirement age. We have conducted latent growth curve modeling to test our hypotheses amongst 12,444 employees aged 45 and older at four time points. The results indicate that developmental practices are positively related to work ability, whereas maintenance practices are negatively related to work ability and the preferred retirement age. Accommodative practices are negatively related to the intercepts of both outcomes but not to the slopes, whereas utilization practices are not related to the outcomes at all.

3.1 Introduction

Driven by population trends like the aging of the workforce, there has been an increasing amount of pressure on pension systems and labor shortages are expected to occur in the near future (Ng & Feldman, 2008; Taylor & Earl, 2016). Governments of many developed countries have responded to these challenges by taking measures to postpone the retirement age and prevent people from retiring at an earlier age (United Nations, 2017). In order to work longer people should remain able and motivated to continue working until or even past their retirement age. These outcomes will be referred to as perceived work ability and preferred retirement age.

The body of research on the extension of working lives is growing (see for example Zacher, Kooij, & Beier, 2018) and previous research suggests that organizations can enhance perceived work ability and preferred retirement age through the use of Human Resource (HR) management (Truxillo, Cadiz, Rineer, Zaniboni, & Fraccaroli, 2012). However, little empirical evidence is available on the effects of HR practices on perceived work ability and preferred retirement age (Pak, Kooij, De Lange, & Van Veldhoven, 2019). In a systematic review Pak et al. (2019) showed that although maintenance and accommodative practices have a positive effect on work ability, effects of developmental and utilization practices were mixed. Moreover, although developmental practices have a positive effect on preferred retirement age, there was insufficient evidence to determine the effect of maintenance, utilization, and accommodative practices on preferred retirement age. Furthermore, the majority of studies focusing on work ability and preferred retirement age rely on cross-sectional data (Pak et al., 2019). However, aging at work implies a temporal dimension (Wang et al., 2017) which cannot be captured with cross-sectional data. Longitudinal growth models would allow us to advance the field of the extension of working lives by providing insight in the stability, growth, and decline of worker outcomes over time (Duncan, Duncan, & Strycker, 2013).

This paper aims to contribute to the literature on the extension of working lives in two ways. First, we contribute to the limited knowledge on facilitators of the extension of working lives by examining the effect of HR practices on perceived work ability and preferred retirement age. Previous studies have either not examined this relation or found mixed results. With this study, we aim to clarify the relationship between four different types of HR practices and perceived work ability and preferred retirement age. Second, this paper examines changes in perceived work ability and preferred retirement age over time with the use of latent growth curve modeling. As a result, we can build further on current work that is

mostly cross-sectional in nature by giving insight into the stability and change in perceived work ability and preferred retirement age.

HR practices as predictors of perceived work ability and preferred retirement age

Building on the Conservation of Resources (COR) theory (Hobfoll, 1989) and person-environment fit theory (Edwards, Cable, Williamson, Lambert, & Shipp, 2006) we propose that the use of HR practices, an organizational resource, will be positively associated with perceived work ability and preferred retirement age. Work ability represents the physical and mental capacity to perform one's job (Ilmarinen, Tuomi, & Klockars, 1997). Having a low work ability is found to be a predictor of sickness absence and early retirement (Sell, 2009). In line with previous studies on the extension of working lives the motivation to continue working is indicated by preferred retirement age (see for example Carr et al., 2016; Henkens & Leenders, 2010).

COR theory posits that it is stressful for individuals to lose resources. To avoid losing resources individuals will invest their current resources to protect their resources and potentially gain new ones. In addition, resources are crucial in achieving one's (work-related) goals (Freund & Riediger, 2001). Since aging is associated with gains (e.g. crystalized intelligence) and losses (e.g. information processing speed and physical strength) in one's resources, the preservation and generation of resources becomes more important to achieve (work-related) goals as one becomes older (Baltes, Staudinger, & Lindenberger, 1999). Therefore, De Lange, Kooij, and Van der Heijden (2015) argue that employees will work longer when they are capable of preserving and generating resources over the course of their working life. Indeed, Pak et al. (2019), Airila et al. (2014), and Carr et al. (2016) found that job resources have a positive influence on (perceived) work ability and preferred retirement age of older workers. In this study, we argue that the use of HR practices as organizational resources can help individuals to compensate for age-related losses, thereby preserving their resources, or generate new resources in order to start a resource gain cycle that is beneficial or prevent a resource loss cycle that is detrimental to perceived work ability and the preferred retirement age.

Kooij, Jansen, Dikkers, and De Lange (2014) formulated four bundles of HR practices (e.g. developmental, maintenance, utilization and accommodative practices) based on the Selection Optimization and Compensation (SOC) model (Baltes et al., 1999). The SOC model suggests that employees allocate their resources in line with four major life goals namely; growth, maintenance, recovery, and the regulation of loss. We propose that organizations can facilitate this allocation of resources by offering bundles of HR practices in

line with these four major life goals. More specifically, developmental practices reinforce growth strategies, maintenance practices reinforce maintenance strategies, utilization practices reinforce recovery strategies, and accommodative practices reinforce strategies focused on the regulation of losses. As the HR practices are bundled according to these employee goals, we argue that employees will use HR practices that fit their goals (Bowen & Ostroff, 2004; Wright & Nishii, 2013). Building on person-environment fit theory (Edwards et al., 2006) we argue that these bundles of HR practices are valuable organizational resources that can help older workers generate additional personal and job resources to help them achieve relevant life-span goals.

First, developmental practices aim to aid workers in improving their performance (e.g. training and promotion). They are seen as important organizational resources (Wheeler, Halbesleben, & Shanine, 2013) which can help employees generate additional person and job resources that are cognitive and/or behavioural in nature. For example, De Lange, De Witte, and Notelaers (2008) showed that employees gained autonomy and departmental resources after receiving a promotion. As developmental practices are classified as organizational resources and can help workers generate additional job resources we argue that they will be beneficial for the extension of working lives. In line with this expectation Aittomäki, Lahelma, and Roos (2003) and Bugajska and Łastowiecka (2005) found that the opportunity to follow training courses (developmental practices) had a positive effect on perceived work ability. Moreover, Henkens and Leenders (2010) and Thorsen et al. (2012) found that having a lack of developmental practices had a negative effect on preferred retirement age. As developmental practices are likely to be used by employees who want to improve their performance even further (Kooij et al., 2014) these individuals are likely to have good levels of perceived work ability and preferred retirement age. Furthermore, based on the notion of resource caravans the use of developmental practices can be seen as a resource that is expected to lead to the generation of additional resources. Therefore, we expect that the developmental practices are positively related to the starting levels as well as the slopes of work ability and the preferred retirement age. Therefore, we formulate the following hypotheses:

Hypothesis 1a: The use of developmental practices is positively related to starting levels of perceived work ability.

Hypothesis 1a: Increases in the use of developmental practices over time have a positive effect on changes in perceived work ability.

Hypothesis 2a: The use of developmental practices is positively related to starting levels of preferred retirement age.
Hypothesis 2b: Increases in the use of developmental practices over time have a positive effect on changes in preferred retirement age.

Second, maintenance practices are practices that facilitate workers to sustain their performance in spite of (age-related) loss of resources (e.g. declines in physical capabilities). These practices are mainly focused on security and protection of personal resources (e.g. health) (Gong, Law, Chang, & Xin, 2009; Kooij, Jansen, Dikkers, & de Lange, 2014). Examples of maintenance practices are health checks and performance appraisals (Kooij et al., 2014). Maintenance practices can help individuals boost physical resources. For example, Robertson and O'Neill (2003) showed that ergonomic adjustments made to the workplace can reduce the number of work-related disorders (and thus increase health). As these practices are likely to be used by employees who face a loss of resources (Kooij et al., 2014) these individuals are likely to have lower levels of perceived work ability and preferred retirement age. Therefore, we expect that the use of maintenance practices is negatively related to the starting levels of work ability and the preferred retirement age. However, as maintenance practices can be seen as organizational resources that can help individuals create additional personal and job resources we expect that they have a positive effect on the slopes of perceived work ability and preferred retirement age. In line with this expectation, Kuoppala, Lamminpää, and Husman (2008) found moderate evidence on the effect of health promotion activities on perceived work ability in their meta-analysis. Furthermore, Shacklock, Brunetto, and Nelson (2009) showed that flexible work options have a positive influence on older workers' decision to continue working. Therefore, we formulate the following hypotheses:
Hypothesis 3a: The use of maintenance practices is negatively related to starting levels of perceived work ability.
Hypothesis 3b: Increases in the use of maintenance practices over time have a positive effect on changes in perceived work ability.
Hypothesis 4a: The use of maintenance practices is negatively related to starting levels of preferred retirement age.
Hypothesis 4b: Increases in the use of maintenance practices over time have a positive effect on changes in preferred retirement age.

Third, utilization practices are practices that make use of the experience, knowledge, and competencies of older workers (e.g. mentoring roles and participation in decision-making) thus optimising these personal resources. These practices can be used to assist

workers in regaining performance after having experienced a drop in performance. They usually make use of lateral development in which job demands that are no longer achievable for the employee are replaced by other demands that fit better with the existing personal resources of the individual (Zaleska & de Menezes, 2007). For example, through mentoring an older worker is better able to use his or her resources (e.g. knowledge and skills of the company and the profession). As these practices are likely to be used by employees who experienced a drop in their performance (Kooij et al., 2014) these individuals are likely to have lower levels of perceived work ability and preferred retirement age. Therefore, we expect that the use of utilization practices is negatively related to the starting levels of work ability and the preferred retirement age. However, as utilization practices can be seen as organizational resources that can help individuals make better use of their existing personal cognitive resources (e.g. knowledge and skills) we expect that utilization practices have a positive effect on the slope of perceived work ability and preferred retirement age. In line with this expectation, two studies found a positive effect of participation in decision-making on the ability to continue working (de Croon et al., 2005; Tuomi, Vanhala, Nykyri, & Janhonen, 2004). Furthermore, Bal and Visser (2011) found that having the opportunity to change work roles had a positive effect on preferred retirement age. Therefore, we formulate the following hypotheses:

Hypothesis 5a: The use of utilization practices is negatively related to starting levels of perceived work ability.

Hypothesis 5b: Increases in the use of utilization practices over time have a positive effect on changes in perceived work ability.

Hypothesis 6a: The use of utilization practices is negatively related to starting levels of preferred retirement age.

Hypothesis 6b: Increases in the use of utilization practices over time have a positive effect on changes in preferred retirement age.

Fourth, accommodative practices (e.g. demotions and receiving an exemption from overtime) are used when an employee can no longer regain previous levels of performance and needs to be assisted in functioning at a lower level (Remery, Henkens, Schippers, & Ekamper, 2003). According to Kooij et al. (2014) these practices help to regulate the loss of resources; by reducing demands there is less strain on the available resources of the employee. To illustrate, a worker who had a burnout can be offered a demotion to a less challenging position which reduces the strain on the resources that the individual has available. Indeed, Josten and Schalk (2010) found that demotions can reduce exhaustion

among older workers when they are moved to less physically challenging positions. As these practices are likely to be used by employees who experienced a drop in their performance and can no longer regain their previous levels of performance (Kooij et al., 2014) these individuals are likely to have lower levels of perceived work ability and preferred retirement age. Indeed, Van der Meer et al. (2016) showed that people with a lower work ability were more likely to use the company practice of reducing workload compared to people with a higher work ability. Therefore, we expect that the use of accommodative practices is negatively related to the starting levels of work ability and the preferred retirement age. However, as accommodative practices can be seen as organizational resources that can reduce strain on personal cognitive and physical resources, we expect that accommodative practices have a positive effect on changes in perceived work ability and preferred retirement age over time. In line with this expectation, the accommodative practices workplace rehabilitation, reducing the number of working hours, and getting exemptions from evening and night work were found to have a positive effect on perceived work ability (Ahlstrom, Hagberg, & Dellve, 2013; Jensen, 2013; Van der Meer et al., 2016). Therefore, we formulate the following hypotheses:

Hypothesis 7a: The use of accommodative practices is negatively related to starting levels of perceived work ability.

Hypothesis 7b: Increases in the use of accommodative practices over time have a positive effect on changes in perceived work ability.

Hypothesis 8a: The use of accommodative practices is negatively related to starting levels of preferred retirement age.

Hypothesis 8b: Increases in the use of accommodative practices over time have a positive effect on changes in preferred retirement age.

An overview of all HR practices that are included in the different bundles can be found in Table 3.1.

Table 3.1. Overview of the HR practices included in the questionnaire (cf. Kooij et al., 2014)

Accommodative practices	**Utilization practices**	**Maintenance practices**	**Developmental practices**
Reduction of tasks and/or responsibilities*	Task enrichment*	Compressed workweek*	Promotion
Additional leave	(Partial) change in tasks or responsibilities *	Ergonomic adjustments to the workplace	Training or instruction on the job*
Demotion	Retraining for a new profession*	Adjustments to work tasks due to illness	1-5 day course or education*
Early retirement			Course or education that takes more than 5 days
Exemption from working overtime /night shifts			Visit to trade fair, conference or seminar
Reduced workload			Visit to the supplier, trade association or business counter

*These items have been removed due to the results of confirmatory factor analyses

3.2 Method

Design of the study and procedure

This research is a secondary data analysis of the Study on Transitions in Employment, Ability, and Motivation (STREAM) (Ybema et al., 2014). STREAM is a longitudinal prospective cohort study among Dutch employed, self-employed, and non-employed persons aged 45 and older. In this study only data from employed persons were analyzed. Data were collected with the help of questionnaires at seven measurement points. The first measurement (T1) took place in 2010, with yearly follow-ups in 2011 (T2), 2012 (T3), 2013 (T4), 2015 (T5), 2016 (T6), and 2017 (T7). We used the first four waves for the present study as changes were made in the questionnaire after the fourth wave.

Sample

Participants of the STREAM study were recruited from an existing panel of Intomart GfK (i.e. a marketing company) in October and November 2010. This panel consisted of about 110,000 persons, of which approximately 35,000 were in the appropriate age range for the study. From these 35,000 eligible participants, a stratified sample by age and initial employment status of 26,601 persons was invited to participate. They received a maximum of two reminders to complete the questionnaire. Intomart GfK recruited their panel members through the contacts of current panel members, newsletters, and banners and by approaching participants of previous nationally representative research. Participants received a small financial reward for participating in this study (a maximum of 3 euro's per questionnaire when participants devoted sufficient time to the questions) (Ybema et al. (2014).

Of the 26,601 invited individuals, 15,118 persons filled in the questionnaire at T1 (response of 71%). Of these 15,118 respondents, 2,674 were either self-employed or unemployed during the entire study and were removed from the analysis. Individuals who were employed during at least one measurement moment during the study were retained for those measurement moments at which they reported being employed. Although only 5,872 of the respondents filled in the questionnaire at all four measurement moments all 12,444 employees who filled in at least one of the questionnaires were included as Mplus is capable of dealing with missing data points. The age of the respondents ranged from 45 to 65 (M = 54.40, SD = 5.49) and 55.9% of the respondents were male. Respondents worked 30.86 hours on average (SD = 10.22). Education level was fairly equally distributed with 27.4% being low educated, 38.8% of the respondents having a middle level education, and 38.8% having a high level of education. The respondents worked in a range of different professions with administrative professions (16.4%), healthcare professions (14.2%), and managerial positions (10.1%) reported most often. With regard to industry, most participants reported that they worked in the healthcare (19.2%), government (12.7%), and education sector (12.5%). Finally, 41.3% of the respondents worked in large companies with 249 employees or more.

Measures

Perceived work ability. Perceived work ability was measured with the first three items of the work ability Index (WAI; Tuomi, Ilmarinen, Jahkola, Katajarinne, & Tulkki, 1998). An example item is "Assume that your work ability at its best has had a value of 10. How many points would you give your current work ability?".

Preferred retirement age. Preferred retirement age was measured with one open-ended question which stated, "Until what age would you like to continue working?". To assess the validity of the single item measure of preferred retirement age we tested the

association with the related concept engagement (Polat, Bal, & Jansen, 2017) measured with the Utrecht Work Engagement Scale (Schaufeli, Salanova, González-Romá, & Bakker, 2002). As expected preferred retirement age was positively correlated with engagement (T1: $r = .136$, $p < .01$, T2: $r = .127$, $p < .01$, T3: $r = .143$, $p < .01$, T4: $r = .148$, $p < .01$).

HR practices. The use of HR practices in the last 12 months was measured with 18 self-constructed dichotomous items. An example question is 'Have you made a promotion in the past 12 months?' These items were categorized and added together as developmental (N = 6), accommodative (N = 6), utilization (N = 3), and maintenance (N = 3) practices according to the HR bundles of Kooij et al. (2014). Table 1 shows which HR practices are covered in each bundle. The bundles of HR practices were conceptualized as a composite formative measurement model in line with the checklist for formative or reflective models of Fleuren, van Amelsvoort, Zijlstra, de Grip, and Kant (2018) (see Appendix 2).

Control variables. Calendar age, gender, and health were included as control variables. Previous studies have shown that age (see for example Ilmarinen, Tuomi, & Klockars, 1997), gender (Hsu & Jones, 2012), and health (Topa, Moriano, Depolo, Alcover, & Morales, 2009) are predictive of perceived work ability and preferred retirement age. Gender is a dummy variable in which males are the reference category.

Analysis

Latent growth curve modeling was conducted in Mplus (version 8) (Muthén & Muthén, 1998-2017). First, scale scores were created to simplify the model. Growth curves consisting of the mean-level of the intercept and the mean level of change were estimated for perceived work ability and preferred retirement age separately over a span of three years. The intercept represents the starting level with higher scores representing higher starting levels, whereas the slope represents the level of change over the four measurement points with higher scores representing higher increases over time (Duncan et al., 2013). Next, growth curves consisting of the mean level of the intercept and the mean level of change in HR practices were used to predict variation in the intercept and slope of the outcome variables. The intercepts of the HR practices were used to predict variation in the intercepts of the outcome variables whereas the slopes of the HR practices were used to predict variation in the slopes of the outcome variables.

3.3 Results

Preliminary analysis

The full correlation table including the correlations of all variables included in this study, their means, and standard deviations are reported in Appendix 3.

Latent growth curve modeling

First, latent growth curve models for both outcome measures were created without including HR practices and control variables as predictors. The fit statistics, mean levels, and variance levels of these models are displayed in Table 3.2. The intercept of perceived work ability is 7.83 (on a scale ranging from 0 to 10), meaning that the initial level of perceived work ability is rather high (p = .00). The slope of perceived work ability is -.06, meaning that over time perceived work ability significantly decreases (p = .010). The intercept of preferred retirement age is 63.63 (p = .00). The slope of preferred retirement age is .37 (p = .00), meaning that preferred retirement age increases over time.

Table 2. Parameter estimates (unstandardized) and fit statistics of the outcome variables

Latent growth curve model	Estimate	SE	χ^2	*df*	CFI	RMSEA
Perceived work ability			73.36***	8	.993	.026
Means						
Intercept	7.83***	.01				
Slope	-.06***	.01				
Variances						
Intercept	1.38***	.03				
Slope	.10***	.01				
Preferred retirement age			72.83***	8	.995	.026
Means						
Intercept	63.63***	.03				
Slope	.37***	.01				
Variances						
Intercept	8.37***	.16				
Slope	.41***	.02				

Note. * = p < .05, ** = p < .01, *** = p < .001, N = 11243 for perceived work ability, N = 10784 for preferred retirement age

Subsequently, HR practices and control variables were added to the model for both outcomes. The standardized estimates of the effects of HR practices over time on both outcomes can be found in Table 3.3. With regard to perceived work ability model fit was good ($\chi 2(222) = 4105.020$, p < .001, RMSEA = .038, CFI = .920). The intercepts of accommodative (β = -.17, p = .00), maintenance (β = -.06, p = .00), and utilization practices (β = -.10, p = .00) have a negative effect on the intercept of perceived work ability. The slope

of maintenance practices (β = -.26, p = .03) also have a negative effect on the slope of perceived work ability, whereas the slopes of accommodative (β = -.09, p = .55) and utilization practices (β = -.12, p = .33) do not affect the slope of work ability. Developmental practices have a positive effect on the intercept (β = .13, p = .00) and slope of perceived work ability (β = .36, p = .00). Gender had a negative effect on the intercept of workability (β = -.05, p = .00), whereas age (β = .04, p = .00) and health (β = .61, p = .00) had a positive effect. Health had a negative effect on the slope of perceived work ability (β = -.32, p = .00).

With regard to the preferred retirement age model fit was good ($\chi 2(222) = 4053.296$, $p < .001$, RMSEA = .037, CFI = .924). The intercepts of accommodative (β = -.06, p = .00) and maintenance practices (β = -.07, p = .00) had a negative effect on the intercept of preferred retirement age, whereas the intercepts of developmental (β = .02, p = .19) and utilization practices (β = -.01, p = .50) had no effect. Furthermore, the slope of maintenance practices had a negative effect on the slope of preferred retirement age (β = -.21, p = .01), whereas the slopes of accommodative (β = .06, p = .55), utilization (β = .07, p = .43), and developmental practices (β = .09, p = .11) did not affect the slope of the preferred retirement age. The intercepts control variables age (β = .28, p = .00) and health (β = .07, p = .00) had a positive effect on the intercept of the preferred retirement age, whereas the intercept of gender had a negative effect (β = -.05, p = .00). The slopes of the control variables did not affect the slope of the preferred retirement age. An overview of which hypotheses are supported and which are not can be found in Table 3.4.

Table 3.3. The effect of HR practices over time on the different outcome variables

		Intercept		*Slope*	
Outcome	Predictor	Standardized estimate	SE	Standardized estimate	SE
Perceived work ability	Development	.13***	.01	.36***	.08
	Maintenance	-.06***	.02	-.26*	.12
	Utilization	-.10***	.02	-.12	.13
	Accommodation	-.17***	.02	-.09	.15
	Age	.04***	.01	.01	.03
	Gender	-.05***	.01	-.00	.03
	Health	.61***	.01	-.32***	.03
Preferred retirement age	Development	.02	.01	.09	.06
	Maintenance	-.06***	.02	-.21**	.08
	Utilization	-.01	.02	.07	.09
	Accommodation	-.06**	.02	.06	.10
	Age	.28***	.01	-.04	.02
	Gender	-.05***	.01	-.03	.02
	Health	.07***	.01	-.02	.02

Note. * = $p < .05$, ** = $p < .01$, *** = $p < .001$, N = 12423

Table 3.4. Overview of the hypotheses

	Hypothesis	Supported?
1a	The use of developmental practices is positively related to starting levels of perceived work ability	Yes
1b	Increases in the use of developmental practices over time have a positive effect on changes in perceived work ability	Yes
2a	The use of developmental practices is positively related to starting levels of preferred retirement age	No
2b	Increases in the use of developmental practices over time have a positive effect on changes in preferred retirement age	No
3a	The use of maintenance practices is negatively related to starting levels of perceived work ability	Yes
3b	Increases in the use of maintenance practices over time have a positive effect on changes in perceived work ability	No
4a	The use of maintenance practices is negatively related to starting levels of preferred retirement age	Yes
4b	Increases in the use of maintenance practices over time have a positive effect on changes in preferred retirement age	No
5a	The use of utilization practices is negatively related to starting levels of perceived work ability	Yes
5b	Increases in the use of utilization practices over time have a positive effect on changes in perceived work ability	No
6a	The use of utilization practices is negatively related to starting levels of preferred retirement age	No
6b	Increases in the use of utilization practices over time have a positive effect on changes in preferred retirement age	No
7a	The use of accommodative practices is negatively related to starting levels of perceived work ability.	Yes
7b	Increases in the use of accommodative practices over time have a positive effect on changes in perceived work ability	No
8a	The use of accommodative practices is negatively related to starting levels of preferred retirement age	Yes

8b	Increases in the use of accommodative practices over time have a positive effect on changes in preferred retirement age	No

3.4 Discussion

This study investigated the relationship between HR practices and perceived work ability and preferred retirement age through a secondary data analysis of the longitudinal Study on Transitions in Employment, Ability, and Motivation (STREAM) (Ybema et al., 2014) amongst 12,444 employees aged 45 to 64.

Latent growth curve modeling revealed a slight decrease in perceived work ability over time. Furthermore, we found a positive effect of the use of developmental practices on the intercept and slope, which was in line with our expectations. Furthermore, in line with our expectations we found a negative effect of the use of utilization, maintenance, and accommodative practices on the intercept of perceived work ability. Contrary to our expectations, maintenance practices had a negative effect on the slope of perceived work ability and utilization and accommodative practices did not influence the slope of perceived work ability. This negative effect and lack of an effect might be explained by the implementation of these practices. Accommodative (autoregressive correlations ranging from .33 to .36), utilization (autoregressive correlations ranging from .29 to .36) and maintenance practices (ranging from .56 to .58) correlate weakly with themselves over time. This could indicate that these practices are mostly used in a curative ad hoc manner, rather than in a consistent preventive manner, thereby limiting their potential positive effect.

Furthermore, our analyses revealed a slight increase in preferred retirement age over time. Furthermore, in line with our expectations the use of accommodative and maintenance practices had a negative effect on the intercept of the preferred retirement age. Contrary to our expectations, accommodative practices did not affect the slope of the preferred retirement age, the use of maintenance practices had a negative effect on the slope of preferred retirement age, and the use of utilization and developmental practices did not affect the intercept nor the slope of the preferred retirement age. A possible explanation for the lack of an effect of developmental, utilization, and accommodative practices is that in the retirement decision-making process work-related factors are merely one of the possible predictors. Personal factors and societal norms also play an important role (Wang & Shultz, 2010) and might outperform work-related factors (Kanfer, Beier, & Ackerman, 2013). Furthermore, the curative ad hoc implementation of these practices could also have caused this lack of an effect.

Theoretical contributions

This study contributes to the literature on the extension of working lives in two ways. First, we examined how the use of HR practices related to perceived work ability and preferred retirement age over time. These analyses revealed that the use of developmental practices has a positive effect on both the intercept and the slope of perceived work ability but does not affect the preferred retirement age. The use of maintenance practices had a negative effect on the intercept and the slope of perceived work ability and on the intercept and the slope of the preferred retirement age. The use of utilization practices had a negative effect on the intercept of work ability, but did not affect the slope of work ability or the intercept and the slope of the preferred retirement age. The use of accommodative practices had a negative effect on the intercept of perceived work ability and the preferred retirement, but did not affect their slopes. As evidence on the relationship between HR practices and outcomes related to the extension of working lives is limited and results were mixed, these results improve our understanding of how HR practices have an effect on the extension of working lives. Based on our findings we argue that the use of developmental practices (rather than the availability of development practices) are important job resources that can facilitate the extension of working lives, whereas HR practices that are traditionally offered to older workers (e.g. maintenance and accommodative practices) do not appear to facilitate the extension of working lives. Nevertheless, the variables are not strongly correlated with one another (Hemphill, 2003) which indicates that HR practices only predict a small amount of the variance in the outcomes and that other variables, such as personal characteristics or societal norms might play a larger role in predicting the extension of working lives (Wang & Shultz, 2010).

Second, we have studied changes over time with the use of latent growth curve modeling. Latent growth modeling revealed that perceived work ability decreases over time whereas preferred retirement age increases over time. These changes in both outcome measures over time highlight the need for more longitudinal research in the field of the extension of working lives. Cross-sectional studies cannot capture these changes over time and therefore do not say anything about the trajectories in these work outcomes and their predictors. With the use of this longitudinal design we could relate predictors (i.e. HR practices) to both the intercepts and the changes in perceived work ability and preferred retirement over time, which cannot be done in cross-sectional studies.

Limitations

Several limitations should be noted with regard to this study. First, preferred retirement age was measured with a single item measure. Although single-item measures reduce the burden on respondents (Fuchs & Diamantopoulos, 2009), it is preferable to use multi-item scales for independent and dependent variables as these are considered to be more reliable and precise (Boyd, Gove, & Hitt, 2005). However, as the majority of studies that use preferred retirement age as an outcome variable use a single item measure we considered it appropriate (see for example Carr et al., 2016). Furthermore, Solem et al. (2016) showed that preferred retirement age is significantly related to the actual retirement age. Second, the content validity of the HR items might be limited as respondents might have different notions of the individual HR practices. For example, one employee might define a flexible work schedule as starting between 8 and 9, whereas another employee might define this as complete freedom when to start working. In future research this issue may be overcome by using company data on the usage of HR practices or by adding a more elaborate description for each HR practice. Finally, Parker and Andrei (2020) distinguish between three different HR strategies towards older workers: include (i.e. age-inclusive HR practices, see for example Boehm, Kunze, & Bruch, 2013), individualize (i.e. age-specific HR practices, such as the HR bundles of Kooij et al., 2014), and integrate (i.e. HR strategies aimed at facilitating interaction between age diverse colleagues, see for example Burmeister & Deller, 2016). In this study, we focused particularly on the individualization strategy. However, practitioners should be aware that beside the four bundles of HR practices that we examined in this study more approaches are available. In future studies it might be relevant to compare these three different strategies with regard to their effectiveness in maintaining and stimulating perceived work ability and preferred retirement age.

Practical implications

This study has several important implications for practice. Based on the results of this study we suggest that organizations should focus on the use of developmental practices to stimulate perceived work ability. However, previous research shows that older workers have fewer opportunities to participate in training compared to younger workers (Canduela et al., 2012). Based on our findings we urge practitioners to offer development opportunities to workers of all ages to stimulate the extension of working lives. Furthermore, the findings of our study reveal that the use of accommodative, utilization, and maintenance practices, which are traditionally offered to older workers, have either a negative effect or no effect on

perceived work ability and preferred retirement age. Therefore, we recommend organizations to offer developmental practices instead of accommodative, utilization, and maintenance practices to older workers and only offer accommodative, utilization, and maintenance practices when older workers face problems at work.

CHAPTER 4

Successful aging at work: the role of work design in growth trajectories of older workers

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Abstract

In order to age successfully at work, people need to maintain or improve their work ability and motivation to work. This implies a process that develops over time and can differ substantially between individuals. Most studies fail to capture this process as they take a variable-centred approach. This study investigated whether different trajectories of perceived work ability and motivation to continue working in the current job can be distinguished between older employees over time and to what extent job demands and job resources are predictive of these different trajectories. We applied growth mixture modelling amongst 5,799 employees of 45 years and older at four time points. We found four distinct groups of older workers that differed in their trajectories of perceived work ability and three types of groups of older workers that differed in their trajectories of their motivation to continue working in the current job. Higher levels of physical and emotional demands were more common in trajectories that were unfavourable, whereas higher levels of mental demands, autonomy, supervisor support, and colleague support were more common in favourable trajectories. This study gives Human Resource Management practitioners insight into how jobs should be designed to stimulate successful ageing at work.

4.1 Introduction

In response to the ageing of the population and increased actions by governments of many developed countries to delay the retirement age (OECD, 2015; United Nations, 2015; Zacher, Kooij, & Beier, 2018b) research interest into successful ageing at work is expanding (Kooij, Zacher, Wang, & Heckhausen, 2020; e.g. Zacher, 2015a; Zacher et al., 2018b). Previous research suggests that organizations can play an import role in stimulating successful ageing at work (De Lange, Kooij, & Van der Heijden, 2015; Truxillo, Cadiz, Rineer, Zaniboni, & Fraccaroli, 2012). More specifically, organizations can design work in such a way that it is beneficial for work ability and motivation to work (Pak, Kooij, De Lange, & Van Veldhoven, 2019).

Previous research on work ability and motivation to work has mostly taken the traditional variable-centred approach which describes the average relationship between variables for the sample as a whole (Jung & Wickrama, 2008; Laursen & Hoff, 2006). The underlying assumption of this technique is that the way that variables relate to one another within the population is relatively homogeneous (Jung & Wickrama, 2008; Laursen & Hoff, 2006). However, previous research with regards to successful ageing (at work) has shown that the differences between employees become larger as they age (Bal, De Jong, Jansen, & Bakker, 2012; Bohlmann et al., 2017; Greller & Simpson, 1999; Hansson, Robson, & Limas, 2001; Schalk et al., 2010) and that individual ageing trajectories differ (Morack, Ram, Fauth, & Gerstorf, 2013). Therefore, a variable-centred approach does not seem appropriate, as common patterns are not likely to exist. Person-centred approaches, which allow for the classification of individuals into different groups with similar trajectories on a particular variable, seem more appropriate when studying successful ageing at work (Rudolph, Zacher, & Baltes, 2019; Thrasher, Zabel, Bramble, & Baltes, 2017). The underlying assumption for person-centred approaches is that the way variables relate to each other is heterogeneous within the population and it is, therefore, a very suitable method for addressing questions regarding group differences in development trajectories (Laursen & Hoff, 2006). More specifically, knowledge of subgroups of ageing workers with regards to different work outcomes resulting from this type of analysis can provide us with better knowledge on the heterogeneity amongst older workers and the specific actions that need to be taken to facilitate successful ageing at work (Rudolph & Zacher, 2020).

The aim of this study is to provide insights into the different trajectories that older workers can follow with regard to work ability and motivation to work and to examine the extent to which job demands and resources predict which trajectories individuals will follow. More specifically, this study aims to contribute to the literature on successful ageing at work by addressing the abovementioned gap. This study will take a person-centred approach to identify subgroups of older workers (i.e. inter-individual differences) with specific trajectories of successful ageing (i.e. intra-individual differences). By using a longitudinal design and a person-centred approach, we can draw conclusions about which job demands and job resources can predict which trajectories of work ability and motivation to work employees follow.

Successful ageing at work

In line with Kooij et al. (2020), we argue that successful ageing at work reflects the extent to which workers will work until or even past their retirement age. Kooij et al. (2020) propose that work ability and the motivation to work are important indicators of successful ageing. However, according to the Selection, Optimization, and Compensation (SOC) theory (Baltes, Staudinger, & Lindenberger, 1999), the ageing process involves gains and losses in one's physical and mental capabilities which can limit one's work ability and motivation to work. Older workers are generally focused on maximizing age-related changes while simultaneously trying to minimize age-related losses (Kanfer & Ackerman, 2004). Hence, maintaining one's work ability and motivation to work despite these changes can be seen as indicators of successful ageing.

Furthermore, Zacher (2015) defines successful ageing at work as "a comparison of employees' intra-individual age-related trajectories of a work outcome over time and across the working life span with other employees' age-related trajectories of the same outcome" (p. 9). With this definition Zacher (2015) proposes that different ageing trajectories can occur and that the normative assessment with others is an important attribute of successful ageing at work. When we combine the definitions of Kooij et al. (2020) and Zacher (2015) we expect that we can distinguish the common trajectories (i.e. usual agers) with regards to how the work ability and motivation to work develop over time and trajectories that deviate positively (i.e. successful agers) or negatively (i.e. unsuccessful agers) from the common trajectory.

Work ability represents the extent to which one is physically and mentally able to perform one's job (Ilmarinen, Tuomi, & Klockars, 1997). In this study we focus specifically on perceptions of work ability. Previous studies have shown that (perceived) work ability generally declines linearly as people age (see for example Carmen Martinez, da Silva Alexandre, Dias de Oliveira Latorre, & Marina Fischer, 2016; Ilmarinen et al., 1997; Van den Berg, Elders, de Zwart, & Burdorf, 2009). Furthermore, Ilmarinen et al. (1997) showed that differences in the development of work ability could be found amongst males and females, different age groups, and different types of occupations. They found that work ability generally declined the most for employees who were older than 51 and for employees in physically demanding positions. Motivation to work represents whether people are motivated to continue their work arrangement (Kanfer, Beier, & Ackerman, 2013). This is conceptualized as the extent to which older workers would like to stay in their current job in the coming years (i.e. motivation to continue working in the current job). Kooij, de Lange, Jansen, and Dikkers (2008) found that the motivation to work also declines with age. Moreover, Beier et al. (2018) found that three different subgroups (successful, usual, and unsuccessful agers) could be distinguished with regard to changes over time in the motivation to work, however they did not examine whether subgroups could be made based on the starting levels of the motivation to work.

Based on the conceptualization of successful ageing as proposed by Kooij et al. (2020) and Zacher (2015) as well as the work of Ilmarinen et al. (1997) and Beier et al. (2018) we formulated the following hypotheses:

Hypothesis 1: Three subgroups of older workers (i.e., a common trajectory, a trajectory that deviates positively from the common trajectory and a trajectory that deviates negatively from the common trajectory) can be distinguished based on the trajectories in perceived work ability that differ in terms of mean starting levels and mean levels of change over time.

Hypothesis 2: Three subgroups of older workers (i.e., a common trajectory, a trajectory that deviates positively from the common trajectory and a trajectory that deviates negatively from the common trajectory) can be distinguished based on the trajectories in the motivation to continue working in the current job that differs in terms of mean starting levels and mean levels of change over time.

Job demands and resources in relation to perceived work ability and motivation

Theories on lifespan development suggest that development trajectories are modifiable (Baltes, 1987; Rudolph & Zacher, 2020) and that organizations can influence development trajectories of older workers in a positive way by applying an age-conscious approach to job design (Truxillo et al., 2012). Along this line of thinking Rudolph and Zacher (2020) emphasize that it is important for organizations to acknowledge that job characteristics can have favourable as well as unfavourable effects on the development of work outcomes of older workers. In this study, we divide job characteristics in job demands and job resources as suggested by the Job Demands-Resources model (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Job demands refer to "physical, psychological, social, or organizational aspects of the job that require sustained physical and/or psychological (cognitive and emotional) effort or skills and are therefore associated with certain physiological and/or psychological costs" (Bakker & Demerouti, 2007, p. 312). Examples of job demands are physical workload, work pressure, and working in an unfavourable environment. Job resources are defined as the "physical, psychological, social, or organizational aspects of the job that are either/or functional in achieving work goals, reduce job demands and the associated physiological and psychological costs and stimulate personal growth, learning, and development" (Bakker & Demerouti, 2007, p. 312). Examples of job resources are pay, supervisor support, and autonomy. The Job Demands-Resources (JD-R) model (Bakker & Demerouti, 2007; Demerouti et al., 2001) suggests that job demands have a negative effect on employee outcomes as they trigger a health impairment process; having too much job demands depletes one's personal resources and leads to exhaustion. Job resources, on the other hand, have a positive effect on work outcomes as they trigger a motivational process. This line of reasoning is largely in line with the findings of earlier research which concludes that job demands have a negative effect on work ability and motivation to work until the retirement age and that job resources have a positive effect on work ability and motivation to work until the retirement age (Liebermann, Wegge, & Müller, 2013; McGonagle et al., 2014; Pak et al., 2019). More specifically, Truxillo et al. (2012) suggest that job resources such as autonomy and social support become more important for older workers as they age. They argue that autonomy is more beneficial for older workers because they have more experience and crystallized intelligence and are thus more capable of working independently compared to younger workers. Furthermore, autonomy gives the older worker room to craft their work in

order to use their specific strengths (Truxillo et al., 2012). Social support is more important for older workers as emotional goals become more important with age (Carstensen, 1995). Therefore, in line with the Demand-Control-Support model (Karasek, 1979), we will focus specifically on the job resources autonomy and social support. With regards to job demands, mental demands and emotional demands are usually suggested to be straining for older workers (Truxillo et al., 2012) as fluid intelligence decreases with age (Cattell, 1971). Furthermore, physical capabilities usually decrease with age causing physical demands to be more strenuous for older workers (Ilmarinen, 2001). Therefore, based on the JD-R model and previous research it is expected that high job demands will be predictive of trajectories that deviate negatively from the common trajectory of perceived work ability and the motivation to continue working in the current job amongst older workers, whereas high levels of job resources will be predictive of trajectories that deviate positively from the common trajectory amongst older workers.

Hypothesis 3: The higher the level of job demands an older worker has at the first measurement moment the more likely it is that this worker will follow a trajectory that deviates negatively from the common trajectory with regard to perceived work ability and the motivation to continue working in the current job.

Hypothesis 4: The higher the level of job resources an older worker has at the first measurement moment the more likely it is that this worker will follow a trajectory that deviates positively from the common trajectory with regard to perceived work ability and the motivation to continue working in the current job.

4.2 Method

Design of the study and procedure

This study is based on a secondary data set from the Study on Transitions in Employment, Ability, and Motivation (STREAM) (Ybema et al., 2014). This data results from a longitudinal study with four measurement moments. The questionnaires have been administered among Dutch employees, self-employed and non-employed people aged between 45 to 64 years old in 2010. Participants of this survey were included in this particular study when they were employees at all of the measurement moments. The first questionnaire (T1) was administered in 2010 and repeated three times with one year time lags in 2011 (T2), 2012 (T3) and 2013 (T4). We made use of all four measurements as at least three data waves are required to analyse the rate and shape of changes over time (Duncan et al., 2013; Jung & Wickrama, 2008).

Furthermore, a time lag of one year between the measurement moments was deemed appropriate. There is not yet a theoretical basis for specifying time lags between measurements in studies with regard to (perceived) work ability and motivation to (continue) work(ing in the current job) (Kooij, Bal, & Kanfer, 2014), however a time lag of 1 year is commonly used (e.g. De Lange et al., 2010; Kooij et al., 2014).

Sample

At the first measurement moment, 26,601 respondents were invited to fill in the first questionnaire of the STREAM study. 15,118 individuals did so, resulting in a response rate of 71%. However, 3,064 of these 15,118 respondents were self-employed or unemployed and were removed from the dataset for this study. Furthermore, 6185 of these employees did not fill in all four questionnaires and were therefore removed from the dataset. 5799 employees who filled in the questionnaire at all four time points were retained in the dataset. The average age of the respondents was 53.5 (SD = 4.98) and ranged from 45 to 65 and 55.9% of the respondents were female.

To examine to what extent the participants who filled in all questionnaires differed from participants who did not fill in all questionnaires a dropout analysis was conducted. These tests revealed that dropouts were somewhat older (M = 55.97, SD = 5.88) than those who filled in all questionnaires (M = 53.68, SD = 5.15) (p = .000). Furthermore, dropouts had a slightly lower perceived work ability (dropouts: M = 7.59, SD = 1.87, filled in all questionnaires = 7.96, SD = 1.49) (p = .000) and a slightly lower motivation to continue working in the current job (dropouts: M = 4.24, SD = 1.15, filled in all questionnaires: M = 4.56, SD = .79).

Measures

Perceived Work Ability. The Work Ability Score was used to measure perceived work ability. This single item measure is part of the Work Ability Index (WAI; Tuomi, Ilmarinen, Jahkola, Katajarinne, & Tulkki, 1998) and is found to be strongly correlated with the WAI (Ahlstrom, Grimby-Ekman, Hagberg, & Dellve, 2010; El Fassi et al., 2013). The question is “Assume that your work ability at its best has had a value of 10. How many points would you give your current work ability?”. This question is answered on a scale ranging from 0 to 10. In this case, 0 means that the employee is currently not able to work and 10 means that the work ability of the employee is at his/her lifetime best.

Motivation to Continue Working in the Current Job. Motivation to continue working in the current job was measured with one question. This single-item was phrased as follows "Would you like to continue doing your current job during the coming 12 months?". Answers were given on a five-point Likert scale ranging from "definitely not" (1) to "definitely" (5).

Job Demands. Job demands were divided into physical demands, emotional demands, and mental demands. Physical demands were measured with three items from the Dutch Musculoskeletal Questionnaire (Bot et al., 2004) at time point 1. Including job demands and job resources as time-invariant covariates reduces model complexity a lot and is more suitable for predicting class membership compared to having time-varying covariates. As job demands and job resources in this study correlate highly with one another over time they are considered relatively stable over time and including them as time-invariant predictors was deemed appropriate. An example item is "Does your work involve working in the same position for long periods of time?". Emotional and mental demands were measured with questions from the Job Content Questionnaire (Karasek et al., 1998) at time point 1. Emotional demands were measured with three items. An example item is "Is your work emotionally demanding?". Scale reliability was good (Cronbach's $\alpha = .852$). Mental demands were measured with 3 items. An example item is "Does your job require a lot of attention from you?". Scale reliability was acceptable (Cronbach's $\alpha = .789$). Based on the CFA of the job demands scales the item "Does your job require you to think extensively" was deleted. All items from the previously mentioned scales were measured on a five-point Likert scale ranging from "(almost) never" (1) to "always" (5).

Job Resources. Job resources were divided into autonomy and social support which were measured with the Copenhagen Psychosocial Questionnaire (Pejtersen, Kristensen, Borg, & Bjorner, 2010). Autonomy was measured with 5 items. An example question is "Can you determine yourself how you conduct your work?". However, the CFA of the job resources indicated a significant increase in fit if this scale was reduced to the two items "Can you determine yourself how you conduct your work?" and "Can you determine the order of your tasks yourself?". Scale reliability was good (Spearman-Brown coefficient = .821). Social support was measured with four items, however, CFA's at the different measurement moments indicated a significant increase in fit if this scale was split up into colleague support and supervisor support. Colleague support was measured with two items. An example item is "How often do you get help and support from your colleagues?". Scale reliability was acceptable (Spearman-

Brown coefficient = .753). Supervisor support was measured with two items. An example item is "How often do you get help and support from your direct supervisor?". Scale reliability was good (Spearman-Brown coefficient = .848). All items from the previously mentioned scales were measured on a five-point Likert scale ranging from "(almost) never" (1) to "always" (5). As indicated above confirmatory factor analyses of job demands and resources revealed that fit was not optimal ($\chi2(125) = 10592.079$ $p < .001$, RMSEA = .083, CFI = .888). After removing two items from the autonomy scale and splitting support into colleague support and supervisor support as reported above model fit was sufficiently improved ($\chi2(89) = 4683.416$ $p < .001$, RMSEA = .065, CFI = .942).

Control Variable. Age was included as control variable in this study as previous research shows that this is strongly related to the outcome variables (see for example Ilmarinen et al., 1997; Kooij et al., 2008; Palermo, Fuller-Tyszkiewicz, Walker, & Appannah, 2013).

Analysis

First, the latent variables that were used for the confirmatory factor analyses were transformed into scale scores to simplify the model. Second, growth mixture modelling was applied to determine whether it was possible to distinguish different trajectories in the development of ability and motivation to work. Subgroups of people with similar trajectories on their perceived work ability or motivation to continue working in the current job are made. Third, we added job demands and resources measured at the first measurement moment to examine to what extent they can be used to predict group membership in subgroups of trajectories of perceived work ability and motivation to continue working in the current job over a period of three years (expressed in Odds Ratios). Jaki et al. (2018) recommend a sample size ranging from 200 to 3000 participants for this method. However, Diallo, Morin, and Lu (2017) emphasize that larger sample sizes usually facilitate the identification of the correct number of underlying groups when using four time points. In line with recommendations of Nylund, Asparouhov, and Muthén (2007) the BIC, the LMR-LRT and the bootstrap likelihood test were used to determine the optimal number of subgroups. The model with the lowest BIC value represents the optimal model (Jung & Wickrama, 2008; Nylund et al., 2007). The LMR-LRT and bootstrap likelihood test compare the current model with a model in which one class fewer is specified and tests for significance. In this test, a significant value shows an increase in model fit (Jung & Wickrama, 2008; Nylund et al., 2007). Once the number of subgroups was determined,

job demands and job resources measured at the first measurement moment were added in a multivariate model to predict class membership. Odds ratios were used to indicate the odds that given the level of job demands and job resources (measured on a scale ranging from one to five) a person belongs to one class compared to the reference category. When an odds ratio is larger than 1, this indicates that when job demands or job resources are higher, the likelihood of being assigned to a specific profile is higher compared to the likelihood of being assigned to the reference profile. When an odds ratio is below 1, this indicates that the when the job demands or job resources are higher, the likelihood of being assigned to a specific profile is lower compared to the likelihood of being assigned to the reference profile. As the significance of odds ratios does not give any information on the size of the effect we follow the suggestions of Chen, Cohen, and Chen (2010) to interpret the odds ratios. Odds ratios between 1.68 and 3.47 (or between .29 and .60) are considered to be small, odds ratios between 3.47 and 6.71 (or between .15 and .29) are considered to be medium, and odds radios larger than 6.71 (or smaller than .15) are considered to be large (Chen et al., 2010).

4.3 Results

Preliminary analyses

Table 4.1 shows the means, standard deviations, and correlations of all variables at time point one. Perceived work ability is significantly and negatively related to physical demands (r = -.088, p < .01) and emotional demands (r = -.099, p < .01), whereas mental demands (r = .054, p < .01), autonomy (r = .111, p < .01), colleague support (r = .105, p < .01), and supervisor support (r = .126, p < .01) are significantly and positively related to perceived work ability. Motivation to continue working in the current job is significantly and negatively related to emotional demands (r = -.069, p < .01) and significantly and positively related to mental demands (r = .060, p < .01), autonomy (r = .082, p < .01), colleague support (r = .130, p < .01), supervisor support (r = .227, p < .01), and perceived work ability (r = .169, p < .01). Finally, age is significantly and negatively correlated with physical demands (r = -.036, p < .01), colleague support (r = -.086, p < .01), supervisor support (r = -.052, p < .01), and perceived work ability (r = -.042, p < .01). However, it should be noted that all correlations are considered to be small (Hemphill, 2003).

Table 4.1 Means (M), Standard Deviations (SD) and correlations at the first measurement moment

	M.	SD.	1.	2.	3.	4.	5.	6.	7.	8.
1. Physical demands	1.84	.96								
2. Emotional demands	2.47	.83	.155**							
3. Mental demands	4.21	.63	-.083**	.324**						
4. Autonomy	3.91	.87	-.167**	-.055**	.072**					
5. Colleague support	3.67	.80	.009	.040**	.155**	.038**				
6. Supervisor support	3.55	.94	.015	-.038**	-.106**	.036**	.093**			
7. Work ability	8.02	1.42	-.088**	-.099**	.054**	.111**	.105**	.126**		
8. Motivation	4.58	.77	.002	-.069**	.060**	.082**	.130**	.227**	.169**	
9. Age	53.48	4.98	-.036**	-.003	.005	.004	-.086**	-.052**	-.042**	.134**

Note. * = p < .05, ** = p < .01. N = 5799

Perceived work ability

Table 4.2 presents the fit indices of the different models with an increasing number of classes with regard to perceived work ability. To achieve model fit variation around the intercept was restricted in all models, meaning that within the different classes variation around the intercept was reduced to zero. Such a model is also referred to as latent class growth analysis model (Jung & Wickrama, 2008). Furthermore, curvilinear change over time reduced model fit and was therefore removed. Even though the bootstrap likelihood test suggests that a model with three classes fits best, the BIC and the LMR-LRT test suggest that more classes can be distinguished. Both the LMR-LRT test and the bootstrap likelihood test suggest that a model with four classes fits better than a model with five classes. Therefore, we choose a model with four classes. Figure 4.1 gives a visual representation of these four classes. The first class is the largest, with 70.8% of all respondents represented in this class and is therefore considered to be the common trajectory. This class has a very high starting value of 8.52 (p = .000) which slightly increases over time (s = .27, p = .004). From now on, this class will be referred to as the *very high increasing work ability class*. The second class represents 24.1% of the respondents. This class has a high starting value (i = 7.28, p = .000) and slightly increases over time (s = .30, p = .001). From now on, we will refer to this class as the *high increasing work ability class*. As this group has a lower starting level and comparable development over time compared to the common trajectory, this group is classified as unsuccessful agers (i.e. this group deviates negatively from the common trajectory). The third class represents 3.1% of the older workers.

This group has a low starting value of perceived work ability (i = 3.74, p = .0000), and shows a fast increase over time (s = 1.23, p = .000). We will refer to this class as the *low fast increasing work ability class*. As this group has a much lower starting level compared to the common trajectory this group is classified as unsuccessful agers (i.e. this group deviates negatively from the common trajectory), despite the fast increase over time. The fourth class contains 2.1% of the respondents. This group starts with a very high level of perceived work ability (i = 8.49, p = .000), and shows a fast decrease over time (s = -1.71, p = .000). We will refer to this class as the very *high fast decreasing work ability class.* Even though this group has a starting level that is comparable to that of the common trajectory, this group is classified as unsuccessful agers (i.e. this group deviates negatively from the common trajectory) due to the fast decrease in perceived work ability over time.

In conclusion, four different trajectories of change in perceived work ability could be distinguished. This contradicts Hypothesis 1, stating that three subgroups of older workers (i.e., those with the common trajectory, those who deviate negatively from the common trajectory, and those who deviate positively from the common trajectory) can be distinguished based on the trajectories in perceived work ability. In contrast, we can distinguish the common trajectory (the very high increasing work ability class) and three trajectories that deviate negatively from the average trajectory (the high increasing work ability class, the very high fast decreasing work ability class, and the low fast increasing work ability class).

Perceived work Ability and job demands

Next, we tested whether job demands could predict class membership with the high increasing work ability class as a reference category. The reference category deviates slightly from the common trajectory in a negative way. In line with our expectations based on Hypothesis 3 the analysis shows that people who have high physical demands are slightly less likely to be in the very high increasing work ability class (i.e. the common trajectory [OR = .78, p = .011]) compared to the high fast decreasing work ability class (reference category). Contrary to our expectations based on Hypothesis 3 Emotional and mental demands did not predict class membership.

Perceived work ability and job resources

In line with Hypothesis 4 we expected that individuals with high levels of job resources would follow a trajectory that deviates positively from the common trajectory. Partly in line with

this hypothesis we found that people who have high amounts of autonomy are slightly more likely to be in the very high increasing work ability class (i.e. the common trajectory [OR = 1.26, p = .007]) compared to the high fast decreasing work ability class (reference category). Contrary to Hypothesis 4 we found that people who have high amounts of colleague support are slightly less likely to be in the very high increasing work ability class (i.e. the common trajectory [OR = .74, p = .041]) compared to the high fast decreasing work ability class (reference category). Supervisor support was not predictive of class membership.

Perceived work ability and age

Age was not predictive of class membership.

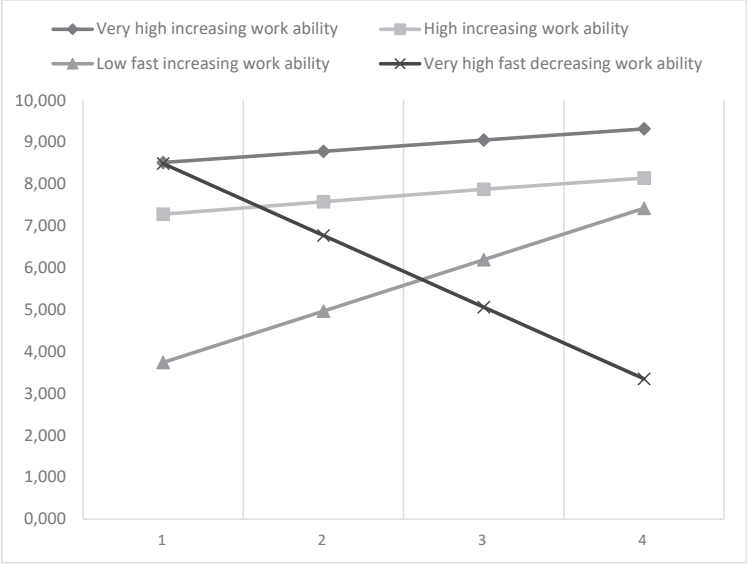
Table 4.2 Fit indices for the latent class growth analysis of work ability with a different number of classes

Number of classes	BIC	LMR-LRT	*p*	Bootstrap likelihood test	*p*	Difference in the number of parameters
2	77799.92	2357.81	.000	-39958.28	.000	10
3	76767.59	1106.14	.000	-38765.75	.000	10
4	76312.00	1630.30	.000	-38121.14	1.000	10
5	76021.91	372.37	.094	-37935.20	1.000	10

Table 4.3 Odds ratios for the different classes of work ability compared to the high increasing work ability class

	Very high increasing work ability		Low fast increasing work ability		Very high fast decreasing work ability	
Predictor	Odds ratio	*p*	Odds ratio	*p*	Odds ratio	*p*
Physical demands	.78	.011	.92	.442	1.00	.987
Emotional demands	.96	.810	1.10	.499	1.13	.436
Mental demands	1.23	.091	1.00	.991	1.01	.948
Autonomy	1.26	.007	.90	.280	1.05	.663
Colleague support	1.09	.338	.74	.041	1.01	.965
Supervisor support	1.15	.099	1.11	.430	.96	.703
Age	.99	.795	1.00	.899	1.01	.736

Figure 4.1 Four perceived work ability trajectories



Motivation to continue working in the current job

Table 4.4 presents the fit indices of the different models with an increasing number of classes with regard to the motivation to continue working in the current job. As the curvilinear slope reduced model fit it was removed. Even though the BIC suggests that a model with three classes is the most optimal, the LMR-LRT and bootstrap likelihood test suggest that four classes can be distinguished. However, in a model with four classes, two classes are too similar to justify a distinction between those groups. This hindered interpretation of the subgroups and therefore it was decided to distinguish three groups (Jung & Wickrama, 2008). Figure 4.2 shows a visual representation of those three classes. The first class represents 69.9% of the older workers and has a high starting value (i = 4.83, p = .000), and slightly decreases over time (s = -.24, p = .000). We will refer to this group as the very *high decreasing motivation class*. As this group includes the largest portion of participants we consider this to be the common trajectory. The second group represents 26.7% of the participants. This group has a high starting value (i = 3.70, p = .000), and remains stable over time (s = .06, p = .288). We will refer to this group as the high

stable *motivation class*. As this group has a lower starting level compared to the common trajectory, this group is classified as unsuccessful agers (i.e. this group deviates negatively from the common trajectory). The third group represents 3.4% of the respondents. This group has a low starting value (i = 1.60, p = .000), and increases over time (s = .80, p = .000). This group will be referred to as the low *increasing motivation class*. As this group has a much lower starting level compared to the common trajectory this group is classified as unsuccessful agers (i.e. this group deviates negatively from the common trajectory), despite the fast increase over time.

In conclusion, we distinguished three trajectories of motivation to continue working in the current job. This seems to support Hypothesis 2. However, if we compare these groups to our definitions of successful ageing we cannot identify a class that deviates positively from the common trajectory (the very high decreasing motivation class), and our findings therefore do not support Hypothesis 2.

Motivation to continue working in the current job and job demands

Next, we tested to what extent job demands are predictive of class membership in which the very high decreasing motivation class was taken as the reference category (i.e. the common trajectory). In line with our expectations as reflected in Hypothesis 3, older workers with high emotional demands are slightly more likely to be in the high stable motivation class (OR = 1.25, p = .000) and the low increasing motivation class (OR = 1.41, p = .003) compared to the very high decreasing motivation class. Contrary to our expectations, older workers with high physical demands are slightly less likely to be in the high stable motivation class (OR = .91, p = .004) and the low increasing motivation class (OR = .80, p = .009) compared to the very high decreasing motivation class. Furthermore, contrary to our expectations people who have high mental demands are slightly less likely to be in the high stable motivation class (OR = .78, p = .000) and the low increasing motivation class (OR = .69, p = .004) compared to the very high decreasing motivation class.

Motivation to continue working in the current job and job resources

With regard to job resources we expected that older employees with high levels of job resources were more likely to follow trajectories that deviate positively from the common trajectory (Hypothesis 4). The analyses revealed that respondents who have high autonomy are slightly less likely to be in the high stable motivation class (OR = .83, p = .000) and the low increasing motivation class (OR = .84, p = .038) compared to the very high decreasing

motivation class. Moreover, people who experience high levels of colleague support are slightly less likely to be in the high stable motivation class (OR = .88, p = .005) compared to the very high decreasing motivation class. Furthermore, people who reported high levels of supervisor support are slightly less likely to be in the high stable motivation class (OR = .63, p = .000) and the low increasing motivation class (OR = .46, p = .000) compared to the very high decreasing motivation class. This partly confirms Hypothesis 4 as older employees with higher levels of resources were more likely to be in the common trajectory compared to trajectories that deviate negatively from the common trajectory.

Motivation to continue working in the current job and age

Older workers were slightly less likely to be in the high stable motivation class (OR = .93, p = .000) and the low increasing motivation class (OR = .89, p = .000) compared to the very high decreasing motivation class.

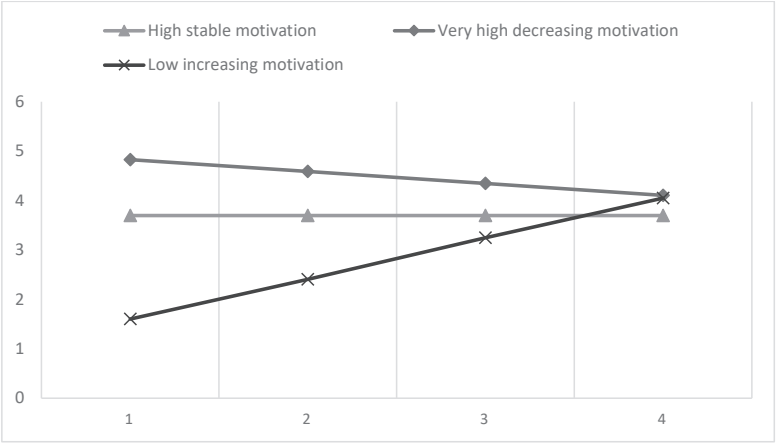
Table 4.4 Fit indices for the latent class growth analysis of motivation to work with a different number of classes

Number of classes	BIC	LMR-LRT	*p*	Bootstrap likelihood test	*p*	Difference in the number of parameters
2	50078.222	3497.540	.000	-26673.871	.000	10
3	45844.832	4270.652	.000	-24904.904	.000	10
4	45896.177	4273.167	.000	-24888.556	.000	10
5	37162.753	34.861	.129	-18334.924	.200	10

Table 4.5 Odds ratios for the different classes of motivation to work compared to the moderate increasing motivation class

	High stable motivation		Low increasing motivation	
Predictor	Odds ratio	*p*	Odds ratio	*p*
Physical demands	.91	.004	.80	.009
Emotional demands	1.25	.000	1.41	.003
Mental demands	.78	.000	.69	.004
Autonomy	.83	.000	.84	.038
Colleague support	.88	.005	.91	.381
Supervisor support	.63	.000	.46	.000
Age	.93	.000	.89	.000

Figure 4.2 Three different classes of motivation to work trajectories



4.4 Discussion

In this study, we investigated whether different trajectories with regard to the perceived work ability and motivation to continue working in the current job could be distinguished amongst older workers and we tested to what extent job demands and job resources were predictive of these different trajectories. We used growth mixture modelling on a secondary longitudinal dataset with four waves (i.e. the Study on Transitions in Employment, Ability, and Motivation; STREAM; Ybema et al., 2014) amongst 5,799 older employees in the Netherlands.

Subgroups in growth trajectories

Growth mixture modelling revealed that different trajectories could be distinguished with regard to perceived work ability and the motivation to continue working in the current job. Contrary to our expectations, we could not make a distinction between the common trajectory, a trajectory that deviates negatively from the common trajectory, and a trajectory that deviates positively from the common trajectory with regard to perceived work ability and the motivation to work. For both outcomes, the common trajectory scored the highest on the outcome measure in terms of both starting levels and development over time. Therefore, it seems that the common trajectory was the most successful group and it was not possible to distinguish a group that deviated positively from the most common trajectory. Furthermore, contrary to our expectations we identified more than three subgroups for perceived work ability indicating that within trajectories that deviate negatively from the common trajectory different subcategories exist. This implies that there are different ways to age unsuccessfully with regard to perceived work ability. With regard to motivation to continue working in the current job three groups were identified, however these could not be classified as the common trajectory, a trajectory that deviates positively from the common trajectory, and a trajectory that deviates negatively from the common trajectory as two of these trajectories deviated negatively from the common trajectory and none of these trajectories deviated positively from the common trajectory. This contradicts the findings of Beier et al. (2018) who did find three groups of (successful, usual, and unsuccessful) agers with regards to the motivation to continue working in the current job amongst older workers. However, their study covered a shorter time period (16 months) than our study (3 years) and their study only classified on the basis of changes over time and not on start values.

The Selection, Optimization and Compensation theory (Baltes, 1997) suggests that people will simultaneously try to maximize gains and minimize their losses by fitting their current resources to demands they face during the ageing process. Baltes et al. (1999) distinguish four different life goals (e.g. growth, maintenance, recovery and regulation of loss) based on which individuals decide to allocate their resources. Our findings suggest that these life goals can indeed be found in trajectories of perceived work ability and the motivation to continue working. More specifically, the common trajectory of perceived work ability started at a very high level and increased over time. This group seemed to be focused on growth. The common trajectory of

motivation to continue working in the current job also started with a very high level but slowly decreased over time. As this decrease is very slow this seems to be in line with the maintenance strategy of Baltes (1997). Furthermore, we identified three types of trajectories that deviated negatively from the common trajectory. The first type of trajectory, which was only found for perceived work ability, was a trajectory that started with high levels but decreased rapidly over time, which might indicate regulation of loss. A possible explanation for this sudden drop in perceived work ability might be that these participants experienced non-normative life events during the time of the study which can cause major losses with regards to work ability (Baltes, 1987). The second trajectory that deviated negatively from the common trajectory, which was found for both perceived work ability and the motivation to continue working in the current job, was a group that started with high levels, yet slightly lower starting levels than the average group, and followed a similar pattern to the common group over time. This is in line with the preserved differentiation hypothesis which states that most people follow the same rate of growth or decline over time but that the initial levels differ due to a third variable (e.g. job design) (Salthouse, 1996). The last trajectory that deviated negatively from the common group, which was found for perceived work ability as well as the motivation to continue working in the current job, started with low levels but increased rapidly over time. These groups seem to focus on recovery. The recovery group is particularly interesting as this group could give insights into how to help unsuccessful agers become successful agers. However, employees in the recovery group of perceived work ability appeared to have lower levels of colleague support compared to employees in the other groups and employees in the recovery group of motivation to continue working in the current job had lower levels of supervisor support, autonomy, physical and mental demands as well as higher levels of emotional demands compared to the other groups. This is contrary to our expectations. It is possible that these factors only predicted the low starting levels of this group, but not the rapid increase over time. Although job demands and job resources were relatively stable over time, it is possible that for these small subgroups job demands and job resources did change over time. Furthermore, it is possible that other factors, such as personal resources, played a more important role in the recovery. Even though these recovery groups deviate negatively from the common trajectory, we argue that they might be classified as successful agers rather than unsuccessful agers as they managed to regain high levels of

perceived work ability and the motivation to continue working in the current job over a period of three years.

Job demands as predictors of growth trajectories

In line with our expectations, people with high physical job demands were somewhat more likely to follow a perceived work ability trajectory that deviates negatively from the common trajectory. However, people with high physical demands were somewhat more likely to follow the common trajectory with regard to the motivation to continue working in the current job. It is possible that the physical demands itself do not determine the motivation to continue working in the current job as long as they fit with personal and job resources and only become problematic when misfit occurs (Fisher, Chaffee, Tetrick, Davalos, & Potter, 2017). Moreover, people with high emotional demands were somewhat more likely to follow a trajectory that deviated negatively from the common trajectory with regard to the motivation to continue working in the current job, but did not predict class membership in perceived work ability trajectories. This might be because emotional regulation strategies tend to improve with age (Carstensen, 2009), thus emotional demands may be less harmful for older workers. Finally, contrary to our expectations, older workers with higher mental demands were somewhat more likely to have an increasing motivation to continue working in the current job but did not predict class membership in perceived work ability trajectories. As we age, our physical capabilities as well as our fluid intelligence tend to decline, whereas our crystallized intelligence tends to improve (Ilmarinen, 2001; Kanfer & Ackerman, 2004; Schaie, 1996). This crystallized intelligence results from experience and makes older workers better suited for mental demands. Therefore, having high mental demands might not be as detrimental for older workers as they are for younger workers. More specifically, Fisher et al. (2014) found, in line with the "use it or lose it" hypothesis that older workers in mentally demanding jobs were better able to sustain their cognitive functioning than older workers with less mentally demanding jobs. Another explanation could be that mental demands are perceived as resources rather than as demands. LePine, Podsakoff, and LePine (2005) distinguish between challenging and hindrance demands and found that challenging demands generally have a positive effect on work-related outcomes whereas hindrance demands generally have negative effects on work outcomes. In this same line of reasoning Van den Broeck, De Cuyper, De Witte, and Vansteenkiste (2010) classify mental

job demands as challenges. More specifically, Schaufeli and Taris (2014) classify challenging demands as job resources rather than job demands.

Finally, it might be possible that job demands and job resources have different effects on different outcomes. Veldhoven, Jonge, Broersen, Kompier, and Meijman (2002) for example found that different characteristics predicted job strain compared to wellbeing. This indicates that more specificity might be needed when examining the relationship between job characteristics and work outcomes related to successful ageing at work.

Job resources as predictors of growth trajectories

With regard to job resources we found, partly in line with our expectations, that older workers with high levels of autonomy, supervisor support and colleague support were somewhat more likely to follow the common motivation trajectory compared to trajectories that deviated negatively from the common trajectory. With regard to perceived work ability, older workers with high levels of autonomy were somewhat more likely to follow the common trajectory compared to trajectories that deviated negatively from the common trajectory. However, contrary to our expectations having higher levels of colleague support made it more likely to be in the recovery group (i.e. unsuccessful agers) compared to the common trajectory. This might indicate that colleague support is particularly important to recover from drops in work ability.

Age as a predictor of growth trajectories

The effects of age on group membership were considered to be very small. Therefore, we conducted additional explorative analyses to examine if the same classes could be distinguished if we would split the dataset according to age. The dataset was split into one dataset with workers aged between 45 and 55 and a second dataset in which workers older than 55 were included. For both datasets, very similar trajectories were distinguished for perceived work ability as well as motivation to continue working in the current job. However, a very small additional subgroup could be identified for each of the age groups for both variables. It thus appears as if age is a very weak predictor of trajectories in perceived work ability as well as motivation to continue working in the current job.

Limitations and future research

Some limitations should be mentioned with regard to this study. First, perceived work ability and motivation to continue working in the current job have been measured with single

item measures. In general, it is recommended to use multi-item scales as these are more reliable and accurate (Boyd, Gove, & Hitt, 2005). However, as single-item measures reduce the burden on respondents they are sometimes included for practical reasons (Fuchs & Diamantopoulos, 2009). In this study, it was deemed appropriate to use single item measures as previous studies reported strong correlations of the single-item measures and scales of the same constructs (Ahlstrom et al., 2010; Wanous, Reichers, & Hudy, 1997). Second, we used four waves of data to capture the trajectories in work outcomes but more waves are preferable to capture the process leading up to retirement more completely (Chan, 1998). However, due to increasing dropout after four waves, it would become a lot more difficult to distinguish between different subgroups, especially as those employees following trajectories that deviate negatively from the common trajectory are more likely to drop out compared to those in the common trajectory and those whose trajectories deviate positively from the common trajectory. Third, it should be noted that the effect sizes of job demands and job resources as predictors of trajectories in perceived work ability and motivation to continue working in the current job were considered to be small (Chen et al., 2010). This suggests that other predictors, such as personal resources and circumstances or societal norms might be more important than job characteristics for determining development trajectories in perceived work ability and motivation to continue working in the current job (Kanfer et al., 2013; Van den Berg et al., 2009; Wang & Shultz, 2010). Fourth, as this study is conducted in The Netherlands the results can only be generalized to Dutch employees. It would be interesting to replicate this study in other countries to see if similar types of development trajectories in work outcomes can be identified. Fifth, although this was beyond the scope of this study, future research should examine how trajectories in perceived work ability and motivation to continue working in the current job are interrelated. Examining profiles of successful agers in which trajectories of perceived work ability and motivation to continue working in the current job are combined is important to find out whether these trajectories are similar within people and why. Finally, unsuccessful agers were less likely to be included in this study due to our selection method and the healthy worker effect. Those workers who have a lower perceived work ability and motivation to continue working in the current job are more likely to already have left the labor market and are therefore not included in this study. Dropout analyses supported the notion that those employees who did not fill in all four questionnaires had a lower perceived work ability and motivation to continue working in the current job compared to those who filled in all

four questionnaires, so even within the timespan of our study a selection effect took place. Individuals with low starting levels concerning work ability and motivation to continue working the current job have a high risk of leaving the workforce if their levels drop even further. We did find individuals of whom the perceived work ability dropped over time, thus it seems as if selection bias is limited. However, with regard to motivation to continue working in the current job we did not find any individuals whose levels dropped over time, which suggests that some selection bias might have taken place.

Theoretical contributions

This study contributes to the literature on successful ageing at work in three ways. First, this study had a longitudinal design so we could reveal subgroups of trajectories of perceived work ability and the motivation to continue working in the current job among older workers. We demonstrated that the trajectories of perceived work ability and motivation to continue working in the current job of all workers included in this study are not stable, but change over time. More specifically, 94,9% of the employees in this study show minor to moderate change in their perceived work ability over time, whereas 5.1% shows major decreases or increases. With regard to motivation, 73,3% respondents in this study showed minor or moderate changes in their levels of motivation to continue working in the current job over time. These fluctuations in work outcomes over time highlight the need for more longitudinal research. The development in work outcomes cannot be captured by cross-sectional studies and we cannot categorize people as being successful, usual, or unsuccessful agers without insight in their development over time.

Second, we took a person-centred approach and we distinguished different trajectories in perceived work ability and motivation to continue working in the current job that could be categorized as successful, usual, and unsuccessful ageing. Although variable-centred approaches are very useful for getting a general idea of how variables relate to each other (e.g. work ability generally declines with age) and for making general recommendations (e.g. physical exercise helps to prevent age-related declines in work ability), person-centred approaches give a more specific idea of how people differ from each other (e.g. for some older workers work ability increases with age). As employees become more different as they age the variable-centred approach cannot capture the ageing process sufficiently. We therefore strongly urge for the use of a person-centred approach with regard to successful ageing at work.

Third, job demands and job resources were used to predict who is ageing successfully and who is not. This has revealed that in general job resources are beneficial for maintaining and promoting motivation to continue working in the current job, whereas physical and emotional demands are detrimental for successful ageing at work. Mental demands, on the other hand, seem to function as resources amongst older workers as they appear to be helpful rather than harmful in maintaining and promoting the motivation to continue working in the current job amongst older workers. We, therefore, suggest classifying mental demands as challenging demands rather than hindering demands in future studies on work motivation amongst older workers.

Practical implications

This study has several practical implications. We have demonstrated that we can distinguish different trajectories of work outcomes among older workers. If HR practitioners want to intervene with regard to successful ageing at work it is important to get some insight into who is ageing successfully and who is not as different approaches are necessary for different subgroups. For curative purposes, it is advisable to provide older workers that are following a trajectory that deviates negatively from the common trajectory with regard to motivation with more resources (e.g. autonomy, supervisor and colleague support), physical and mental demands, whereas the negative consequences of emotional demands should be minimized. Previous studies have shown that one possible way to stimulate autonomy is through the implementation of self-managing teams or empowerment (Parker, Williams, & Turner, 2006). Supervisor support can be enhanced by supervisors who make sure that work procedures are seen as fair, ask their subordinates how they can assist them and by showing personal consideration (Maertz, Griffeth, Campbell, & Allen, 2007). Finally, as colleague support is seen as a reciprocal process (Bowling, Beehr, & Swader, 2005) employers should stress to their employees that in order to receive support from colleagues they should first start giving support to others (Xanthopoulou, Baker, Heuven, Demerouti, & Schaufeli, 2008). Furthermore, the negative effects of emotional demands may be mitigated by training the emotional competence of employees (Giardini & Frese, 2006). Furthermore, employees who are following an unsuccessful trajectory might need to be (temporary) shielded from emotional demands in order to recover. Mental demands could be increased by adding task enrichment to monotonous jobs (Bosma et al., 2003).

For older workers who are following an unsuccessful trajectory with regard to perceived work ability, it is advisable to minimize physical demands. A systematic review by van der Molen, Sluiter, Hulshof, Vink, and Frings-Dresen (2005) showed that lifting strategies and changing the work behaviour of employees through education and facilitation strategies were most useful in reducing physical demands. Furthermore, Ilmarinen (2001) showed that physical exercise can buffer the negative effects of physical demands on work ability as one ages. Although providing additional job resources and challenging (e.g. mental) demands is particularly relevant for unsuccessful agers it is recommended to provide all older workers with plenty of job resources and to maximize challenging demands as they might be helpful in preventing future declines. With regard to average agers and successful agers, job resources and job demands should be monitored to make sure that people remain average or successful in their ageing trajectories. For example, supervisors could schedule regular talks with their employees regarding their perceived work ability and motivation to continue working in the current job in which job demands and job resources are discussed and adaptations are made if needed.

CHAPTER 5

The perceived influence of career shocks on one's career: a qualitative study among older workers

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Abstract

Employees need a sustainable career to prolong their working lives. The ability, motivation, and opportunity to work form an important basis for sustainable careers across the lifespan. However, over the lifespan of their careers employees are likely to experience several career shocks (e.g. becoming chronically ill or being fired) which might lead to unsustainable trajectories. This study aims to contribute to the literature on sustainable careers by examining how individuals perceive the influence of career shocks on their ability, motivation, and opportunity to work, and how organizations respond to this. 33 in-depth retrospective interviews with participants of 50 years and older have been conducted and they have been analysed using template analysis. Results showed that career shocks can trigger changes in demands or changes in resources, which in turn, relate to changes in person-job fit. When person-job fit diminished, the ability, motivation, and opportunity to continue working would decrease, whereas when person-job fit improved, the ability, motivation, and opportunity to continue working would improve as well. Organizations can diminish the negative effects of person-job misfit by offering job resources and HR practices in response to career shocks. A limitation of this study is the retrospective nature of the interviews, which could have resulted in recollection bias. This study gives HRM practitioners insight into the HR practices that are effective in overcoming career shocks.

5.1 Introduction

As a result of increased life expectancies in combination with decreasing birth rates, the populations of many developed countries are aging (Phillips & Siu, 2012). This trend results in potential labour shortages and increased pressure on pension systems (Wahrendorf, Akinwale, Landy, Matthews, & Blane, 2017). Therefore, it is of utmost importance that employees work until a later age and have sustainable careers (De Vos, Van der Heijden, & Akkermans, 2018). In line with the Abilities-Motivation-Opportunity (AMO) theory (Appelbaum, Bailey, Berg, & Kalleberg, 2000), we argue that in order for careers to be sustainable, people must have the ability, motivation, and opportunity to work over the course of their career (Van Der Heijden, 2012).

De Vos et al. (2018) and De Lange, Kooij, and Van der Heijden (2015) suggest that resources are essential for sustainable careers. They argue that the process of preserving and generating resources will lead to sustainable careers and that the loss of resources is detrimental for a sustainable career. However, over the span of their careers employees are likely to experience several career shocks (also referred to as happenstance, major life events, serendipity, triggers, and chance events) which might cause resource depletion and thus harm the sustainability of their careers (Hirschi, 2010). Career shocks are unplanned or unexpected events which can take place in one's private life (e.g. becoming chronically ill) or at work (e.g. getting a promotion) that cause a disruption in one's career (Akkermans, Seibert, & Mol, 2018). However, little research has been conducted to examine the effect of career shocks on resource gain and depletion, and their subsequent influence on the ability, motivation, and opportunity to continue working.

Similarly, little is known about how to mitigate or enhance the effects of career shocks. Human Resource (HR) practices are generally thought to be beneficial for the maintenance and enhancement of the ability, motivation, and opportunity to continue working (Truxillo, Cadiz, Rineer, Zaniboni, & Fraccaroli, 2012; Veth, Van Der Heijden, Korzilius, Emans, & De Lange, 2016) because they can provide individuals with additional resources. HR practices could therefore be especially beneficial when employees face career shocks that deplete their resources. However, organizations might not always be aware of the career shocks employees face in their private life (e.g. a divorce or a loved one who becomes chronically ill) or might even cause career shocks at work (e.g. firing an employee or reorganizing). Furthermore, we do not

always know to what extent organizations are willing or able to intervene at these moments.

In summary, currently little is known with regards to the precise effects of career shocks on outcomes related to sustainable careers (i.e. the ability, motivation, and opportunity to continue working) (Akkermans et al., 2018). Moreover, we do not yet know whether and how organizations respond to career shocks. This study aims to contribute to the literature on sustainable careers in two ways. First, we will investigate whether and how career shocks play a role in the development of the ability, motivation, and opportunity to work with retrospective narrative interviews. Second, we will investigate whether and how organizations respond to career shocks. This results in the following research question:

How do career shocks influence the development of sustainable careers over time and how do organizations respond to this?

The ability, motivation, and opportunity to continue working

In this study we consider a sequence of career experiences to be sustainable when indicators of sustainable careers increase or remain relatively stable over the course of the career. In line with Van Der Heijden (2012), we apply the conceptual grouping of the Ability-Motivation-Opportunity (AMO) framework (Appelbaum et al., 2000) to determine the indicators of sustainable careers. The AMO framework proposes that organizations can improve employee performance by optimizing the employees' ability, motivation, and opportunity to perform. When this theory is applied to sustainable careers this would suggest that individuals need to maintain or enhance their ability, motivation, and opportunity to (continue) work(ing) over the span of their career in order for their careers to be sustainable (Le Blanc, Van der Heijden, & Van Vuuren, 2017; Pak, Kooij, De Lange, & Van Veldhoven, 2019). The AMO theory is usually applied to proximal behavioural outcomes, rather than distant overall outcomes such as careers. However, we argue that these three elements capture the fluctuations that are inherent to careers as they are important factors in the career decision-making process. Even though research in the field of Human Resource Management has traditionally focused on either the ability, motivation, or opportunity (to work), combining these outcomes allows us to get a broader and more complete picture of how careers develop over time (Jiang, Lepak, Hu, & Baer, 2012). Furthermore, this combination of outcomes provides us with the opportunity to identify possible conflicting effects of career shocks on the different indicators of the extension of working lives.

The ability to (continue) work(ing) is conceptualized as work ability which represents the

match between a person's mental and physical capacity in relation to the demands of his or her job (Ilmarinen, Tuomi, & Klockars, 1997). Previous studies have shown that individuals with a low work ability were likely to have a higher sickness absence (Nygård et al., 2005; Sell, 2009) and retire at an earlier age (Hopsu, Leppänen, Ranta, & Louhevaara, 2005; Sell, 2009). According to Kanfer, Beier, and Ackerman (2013) motivation can be distinguished into the motivation at work, the motivation to work, and the motivation to retire. First, the motivation at work refers to the cognition, affect, and behaviour that employees use to accomplish tasks within their job (i.e. the motivation to perform well at your job). Second, the motivation to work refers to the cognition, affect, and behaviour that employees direct towards participation in a work arrangement (i.e. the motivation to be part of any form of work arrangement such as being an employee, solo-self employed worker, or freelancer) (Kanfer et al., 2013). Third, the motivation to retire refers to the cognition, affect, and behaviour that employees direct towards exit from the career (Kanfer et al., 2013). In this paper we focus specifically on the motivation to work as this is the most direct indicator of whether people want to continue working at any given age and thereby achieve sustainability in their career. Motivation to work has been found to be a strong indicator of the actual retirement age (Solem et al., 2016). The opportunity to (continue) work(ing) is expressed by employability which refers to a person's perceived opportunities to maintain his or her current job, or find a new job when needed in either the internal or external labour market (Vanhercke, De Cuyper, Peeters, & De Witte, 2014). Previous research has found that employable individuals are better equipped to cope with challenges in the labour market (De Cuyper et al., 2014; Vanhercke et al., 2014).

Career shocks

During the course of their (working) life people are likely to experience several major events that impact their careers (Hirschi, 2010). These events will be referred to as career shocks in this study. Akkermans et al. (2018) define a career shock as:

> a disruptive and extraordinary event that is, at least to some degree, caused by factors outside the focal individual's control and that triggers a deliberate thought process concerning one's career. The occurrence of a career shock can vary in terms of predictability and can be either positively or negatively valenced. (p.4)

We will clarify several aspects of this definition. First, career shocks are disruptive and extraordinary events. In other words, career shocks are events that are important and unusual to

the individual. Second, career shocks are expected to vary in the degree to which they are uncontrollable and unpredictable (Akkermans et al., 2018). For example, Akkermans et al. (2018) illustrate that although having children is often planned and desired, the consequences of having children are not always predictable. Childbirth can cause unexpected complications or there can be unexpected negative responses from one's employer (e.g. withholding promotion opportunities). Third, it is expected that career shocks that are experienced as positive events (e.g. a promotion) will have more positive consequences for the sustainability of one's career than career shocks that are experienced as negative events (e.g. the death of a loved one) (Akkermans et al., 2018). In this study, we will classify career shocks as either positive or negative shocks based on how they are initially experienced by the participant on a personal basis, rather than based on the effect they have on their career. The aforementioned examples of career shocks (e.g. having children, getting a promotion, the death of a loved one) have been previously studied, for example in the life span or work-family literature. They are often referred to as normative or non-normative transitions (Baltes, 1987). In line with Holtom, Mitchell, Lee, and Inderrieden (2005) we therefore argue that career shocks are not a new construct, but rather advance our thinking in how these normative and non-normative events influence career development.

Seibert et al. (2013) identified seven types of career shocks (e.g. visible job success, quick raise or promotion, mentor departure, and organizational change) among young employees which they clustered into positive and negative shocks. These shocks all occurred in the workplace. Akkermans et al. (2018) suggest that career shocks can also occur in the private context. In addition, Holtom et al. (2005) found that career shocks in the private context can influence career decisions such as turnover. Therefore, we will examine positive and negative career shocks in both the private and the work context.

In line with Akkermans et al. (2018), we use the conservation of resources theory (Hobfoll, 1989; Hobfoll, 2001) to understand how and why career shocks influence sustainable career outcomes (i.e. work ability, the motivation to continue working, and employability). According to this theory, people need resources to cope with the demands of their environment. Consequently, they experience losing resources as highly stressful. As much as possible, people strive to protect their current resources and acquire new ones. To achieve this goal, individuals need to re-invest their current resources. This reasoning applies to the work context as well;

previous research shows that personal resources are important to obtain work-related goals and help individuals deal with challenges they face during their career (Akkermans, Schaufeli, Brenninkmeijer, & Blonk, 2013; Freund & Riediger, 2001; Hobfoll, 2002). Therefore, in line with COR theory, De Vos et al. (2018) propose that sustainable careers result from the preservation of resources and generation of new resources. Pak et al. (2019) confirm this proposition by showing that job resources have a positive effect on the ability, motivation, and opportunity to continue working. Akkermans et al. (2018) propose that career shocks are likely to result in resource generation or resource loss. Therefore, career shocks can have a substantial effect on the degree to which a career can be considered sustainable. For example, getting cancer and the treatment of cancer is often detrimental for one's health (personal resource) and work ability (Munir, Yarker, & McDermott, 2009) resulting in job loss for 26 to 53% of cancer survivors (Mehnert, 2011). Moreover, Bakker, Du, and Derks (2018) found that a range of private life events can cause decreases in energy and cognitive resources. People who receive a promotion, on the other hand, gain job resources such as autonomy leading to higher levels of motivation (De Lange, De Witte, & Notelaers, 2008).

HR practices

Building on COR theory (Hobfoll, 1989; Hobfoll, 2001), we argue that if organizations were to respond to career shocks, they might be able to mitigate the potential negative effects of negative career shocks or reinforce the potential positive effects of positive career shocks on sustainable careers by providing additional job resources in the form of HR practices. Kooij, Jansen, Dikkers, and de Lange (2014) suggest that four bundles of HR practices can be used during the career to maintain sustainable careers, namely developmental, maintenance, utilisation, and accommodative practices. Development HR practices (e.g. training) are aimed at helping workers to improve their performance. Wheeler, Halbesleben, and Shanine (2013) classify development practices as an important job resource. Furthermore, they are thought to generate additional personal and job resources (such as self-efficacy). To illustrate, Rhoades and Eisenberger (2002) showed that training leads to higher levels of organizational support. As developmental practices are job resources that can help employees generate additional resources they are found to be beneficial for the ability, motivation, and opportunity to continue working (see for example Bugajska & Łastowiecka, 2005; Camps & Rodríguez, 2011; Henkens & Leenders, 2010). Maintenance HR practices (e.g. health checks) are aimed at helping employees

in sustaining their performance despite the possible negative effects of career shocks. These practices are thought to influence outcomes related to sustainable careers by protecting and increasing job and personal resources, for example by providing individuals with feedback (job resource) and protecting their health (personal resource). To illustrate, performance appraisals lead to an increase in feedback (Fletcher, 2001). As such, they are found to have positive effects on outcomes related to sustainable careers (Kuoppala, Lamminpää, & Husman, 2008; Shacklock, Brunetto, & Nelson, 2009). Utilization HR practices (e.g. mentoring roles) are aimed at making use of the specific experience, knowledge, and competences that older workers have. These practices change job demands in such a way that they fit better with the current personal resources of employees (Kooij et al., 2014). As such, they are found to be beneficial for the ability, motivation, and opportunity to continue working (see for example Bal & Visser, 2011; Tuomi, Vanhala, Nykyri, & Janhonen, 2004). Accommodative HR practices (e.g. demotions) are aimed at assisting employees to function at a lower level when it is no longer possible to regain former performance levels. By lowering job demands, less strain is being put on the current resources of employees. To illustrate, Josten and Schalk (2010) found that older workers who were moved to a position with lower physical demands experienced lower amounts of exhaustion. As such accommodative practices are shown to have positive effects on the ability, motivation, and opportunity to continue working (see for example Ahlstrom, Hagberg, & Dellve, 2013; van der Meer et al., 2016).

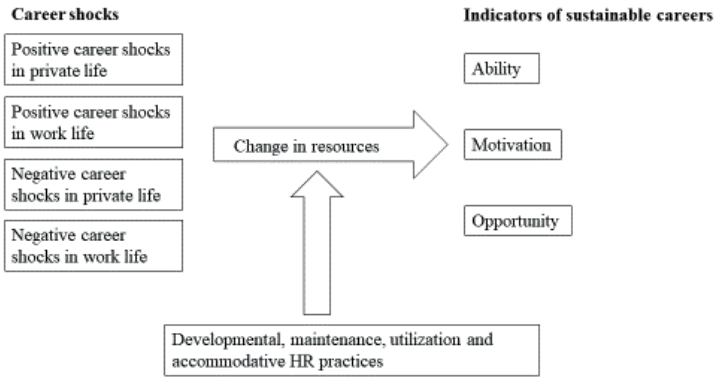
As illustrated above we argue that HR practices can help individuals gain additional personal and job resources or reduce strain on personal and job resources and therefore help start a resource gain cycle. Previous research has shown that HR practices are beneficial for outcomes related to sustainable careers and we argue that they might be especially relevant in combatting career shocks that threaten the ability, motivation, and opportunity to continue working. Beside HR practices, we will also consider general job resources such as autonomy and supervisor support in this study as Pak et al. (2019) have shown that these resources are important in stimulating the ability, motivation, and opportunity to continue working as well.

In conclusion, from the aforementioned literature we derived three indicators of sustainable careers (i.e. the ability, motivation, and opportunity to continue working), an initial understanding of what career shocks are, and four bundles of HR practices (i.e. developmental, maintenance, utilization and accommodative practices) that might be helpful to mitigate potential

negative effects of career shocks. These concepts will be used to guide the interviews. In Figure 5.1 the relationships between these different concepts are illustrated. As can be seen in this figure, career shocks are expected to trigger either a resource gain or a resource loss cycle that, in turn, affects the ability, motivation, and opportunity to work. Organizations might prevent negative loss spirals, or reinforce positive gain spirals, when they offer additional resources in the form of HR practices to the employee after experiencing a career shock. Consequently, this qualitative paper aims to answer the following sub-questions:

1. How do employees experience the influence of career shocks on the development of their ability, motivation, and opportunity to continue working?
2. How do organizations respond to employees when they are experiencing career shocks and which reactions are perceived as helpful in mitigating the negative effects of negative career shocks or enhancing the positive effects of positive career shocks?

Figure 5.1 The assumed process through which career shocks influence sustainable careers.



5.2 Method

Study design

This study had a qualitative research design to acquire an in-depth understanding of how career shocks influence career sustainability. This explorative approach yields rich data, which can help us understand the underlying process of how career shocks influence the ability, motivation, and opportunity to continue working better. Furthermore, it can provide more insight into how organizations respond to career shocks than a questionnaire approach. The first author and trained research assistants conducted in-depth interviews in which participants retrospectively reflected on their career.

Sample

We interviewed 33 participants. Participants had to be 50 years or older to be able to reflect back upon a sufficiently long career span. We selected participants from the network of the researchers. We used purposive sampling to achieve a balanced representation of the Dutch population by selecting a mix of males and females with different types of work: physical (e.g., roofer, firefighter), mental (e.g., financial consultant, technical advisor), and a combination of both (e.g., nurse, music teacher). Table 5.1 provides an overview of the characteristics of the participants.

Table 5.1 Characteristics of the participants

Variable	Sub category/range	Range	N/Mean
Gender	Male		16
	Female		17
Education level	High		14
	Low		19
Age		Ranging from 51 to 65	M = 58,97
Tenure		Ranging from 0 to 50	M = 14,15
Type of job	Physically demanding job		4
	Mentally demanding job		11
	Combination of physical and mental demands		16

Instruments

We used a retrospective interviewing technique in which participants were asked to reflect on their career up until the present moment in semi-structured interviews. First, we asked the participants to give a summary of their resume and answer general questions. Second, they were asked to draw trajectories of their ability, motivation, and opportunity to continue working over their working lifespan. The drawings were used to prime the career shocks that participants

faced throughout their career (Adriansen, 2012). An example of a drawing of fluctuations in work ability can be seen in Appendix 4. This drawing illustrates how this person's work ability develops over her career. There are several clear drops in work ability that are directly linked to career shocks (indicated with yellow dots). The green dots indicate actions that the individual took to deal with this shock and the blue dot indicates an HR practice that was offered by the organization in response to the shock. However, as the drawings do not provide much information without additional context they were not coded or analyzed. In the remainder of the interview, we asked participants to explain the trajectories they had drawn. In some cases participants split up the ability to work in their mental and physical ability, whereas others combined these two components. We saw changes in either the physical or mental ability as a change in the ability to continue working. Furthermore, some people split up the motivation to work into work enjoyment and the motivation to partake in a work arrangement. In this case, we focused on the second aspect in our questioning and coding, because motivation to partake in a work arrangement is more closely related to the decision to continue working (Kanfer et al., 2013). Next, we asked the participants at which moments they were offered HR practices during their career and whether these were perceived as helpful. Finally, we asked participants to indicate at which moments they would have liked to receive HR practices that their organizations did not provide (e.g. a new mother who would like to work part-time but does not get this opportunity). We carried out two pilot interviews to develop and fine-tune the interview protocol. Based on these pilot interviews, we added a general question in which the participants were asked to describe their resume. Moreover, we conducted "member checks" to enhance the quality and reliability of the interviews (Tashakkori, Teddlie, & Teddlie, 1998). After each interview, a summary of the most important findings (i.e. how career shocks influenced their ability, motivation, and opportunity to work and how organizations responded to this) was made and send to the participant for approval. Using this approach we could verify our interpretation of the most important changes and thereby enhance the reliability of the data (Creswell & Miller, 2000).

Data analysis

We transcribed the interviews and used template analysis to analyze the data (King, 2004). Based on a combination of the pilot interviews and the literature, a set of preliminary codes was made to facilitate the analysis. During the analyses of the transcripts, codes have been

added and altered using ATLAS.ti (Muhr & Friese, 2004). An overview of the initial and final codes are given in Appendix 5 and 6. In Figure 5.2 and in the final coding scheme in Appendix 6, it can be seen which kinds of events are classified as which type of shock. Furthermore, to establish whether the career shocks that participants mentioned during the interview were indeed career shocks we evaluated whether (1) they had any impact on the ability, motivation, and opportunity to work, (2) they were either unexpected or the consequences could not be predicted beforehand, and (3) this type of event is extraordinary for this individual based on the definition of career shocks by Akkermans et al. (2018). For example, several participants reported having children or getting married, which was an extraordinary event for them (criteria 3), but these events did not have any effect on their ability, motivation, and opportunity to continue working (criteria 1), and no unexpected or unforeseeable consequences resulted from this event (criteria 2). Furthermore, a participant reported the death of a parent, which was an extraordinary event (criteria 3), that was not expected (criteria 2), but did not affect the ability, motivation, and opportunity to continue working (criteria 1). In these instances, the events were not coded as career shocks. This means that the same event (e.g. having children) could be coded as a career shock for one person but not for another.

In the coding process, we mainly focused on the type of shocks that were mentioned, the perceived consequences of the career shocks on the ability, motivation, and opportunity to continue working, the process through which career shocks influenced the ability, motivation, and opportunity to continue work, the HR practices or job resources that organizations offered, and the perceived effectiveness of these HR practices and job resources. In doing so, five new coding groups emerged, namely a change in job resources, a change in personal resources, a change in home demands, a change in job demands, and a change in person-environment fit. These categories were combined with the initial coding groups when coding the interviews. Next, we summarized for each participant which career shocks they faced, what the influence of each career shock was on the ability, motivation, and opportunity to continue working, and which HR practices were offered after each career shock. Then, we compared and summarized the process of each type of career shock on the outcomes based on the different coding groups. Thereafter, we compared these processes and examined to what extent different career shocks could be grouped together based on the process and consequences they had. After analyzing the effects of career shocks on the ability, motivation, and opportunity to continue working, it

became clear that it was not possible to divide career shocks into positive and negative shocks as we initially intended. That a certain career shock was positive for some people did not automatically mean that it was positive for all people who experienced a similar shock. For example, the career shock of having a new job either had very positive effects or very negative effects. Furthermore, in some cases a shock had a negative effect on one aspect of sustainable careers whereas it had a positive effect on another aspect of sustainable careers. For example, when people got a chronic illness or another form of severe physical complaints, this led to a reduction in work ability, but for some individuals, it also caused an increase in motivation because not being able to work made it clear how important this aspect of their life was. We therefore decided not to group shocks into positive or negative career shocks but only into shocks in private life and shocks at work. Next, we summarized for each type of career shock which HR practices and job resources were offered and to what extent they were perceived as effective. We split up the HR practices that were received from the HR practices that were desired.

5.3 Results

While analyzing the effects of career shocks on the ability, motivation, and opportunity to continue working, two types of mechanisms where uncovered; namely (1) the gain or loss of personal and/or job resources and (2) the increase or decrease in demands. These changes in resources and demands, in turn, led to the increase or decrease of person-job fit. In this results section, we will first discuss each of these two mechanisms and subsequently discuss how they influence the ability, motivation, and opportunity to continue working through their effect on person-job fit. Secondly, we will discuss how the responses of organizations can strengthen or weaken these mechanisms. Moreover, we will form propositions to help guide researchers in testing the assumptions resulting from this qualitative study in future quantitative studies. These propositions combined form a process model which is visualized in Figure 5.2. The mechanisms will be discussed below.

The gain or loss of resources

The first process that we will discuss is a change in resources. In a few cases, career shocks in private life (i.e. after moving or getting a new relationship) and at work (i.e. after a career switch, getting a new job, and reorganizations) led to the gain of resources. For example,

one participant experienced an increase in the motivation to continue working because his new romantic partner challenged him to develop professionally which resulted in more work enjoyment (i.e. spousal support). He mentioned '*It is motivating to develop yourself together and that makes you feel safe in your job, because you have a backup. I mean in a way that makes you take on another study and you have extra knowledge, but also that you have a partner with whom you can discuss that field of study*' (participant 6, 61 year old consultant). However, in most cases, career shocks in private life (i.e. a divorce, getting a chronic illness or severe physical complaints, getting a burn-out, losing a loved one, a loved one gets ill, and moving) led to a loss of resources. For example, one participant explained how sleep apnea affected his work ability through a decrease in energy: '*I started getting physical complaints. I got diagnosed with sleep apnea. I probably had it for a while already, but it became really clear because I was working many hours each day and I had to drive a lot. The second or third day of the week, I was completely exhausted and I needed the entire weekend to recover*' (participant 3, 57 year old Food & Beverage manager). Certain career shocks at work (i.e. reorganizations, having a conflict with your supervisor, being fired, bankruptcy, and switching jobs) also led to a loss of personal and/or job resources. Several participants mentioned that conflicts with a colleague or a boss were energy consuming and that it made the workplace less of a safe environment. One participant mentioned '*I slept badly. I was restless. I did not feel safe at work*' (participant 16, 57 year old police officer). Organizational change or getting a new job led to resource loss through job insecurity or a lack of experienced appreciation. One participant mentioned that she moved to a job that was less physically intense because this would benefit her work ability in the long run, but as it took time to adjust to the new job her ability decreased at first as the adjustment costed a lot of energy. She explained '*My new job costs me a lot, because I had lost all the security I had at the hospital. I knew everything there so well. That just costs a lot of energy. A new job with new people and new customs, new protocols and a new education*' (participant 13, 65 ambulance nurse).

The increase or decrease in demands

The second process that was triggered by career shocks was a change in demands. Several career shocks in private life (i.e. having children, the illness of a spouse or loved one, a divorce, having problems with your children, and becoming a grandmother) led to an increase in demands at home. For example, having children was perceived as mentally and physically

demanding by several participants. They indicated that they needed to find a new balance between home and work demands. This is illustrated by the following quote: *'Well, you have to find your way. At some point you have to start combining work and children and that asks a lot of you*' (participant 1, 61 year old daycare employee in a nursing home). Furthermore, career shocks at work could cause an increase (i.e. a reorganization or having a conflict at work) or a decrease in demands (i.e. a demotion). One participant mentioned '*when we transferred to the municipality, the staff was cut in half but there was more work than before. I got some help from other organizations but the rest of the work I had to do all by myself, all the paper work. Yes that was a lot of work*' (participant 1, 61 year old daycare employee in a nursing home). However, one person experienced a demotion as a career shock and this had the opposite effect. He explained that he was not ready to retire yet, but that working for the fire department became too heavy. This demotion led to a decrease in workload and physical demands, which allowed him to continue working and maintain his income. This brings us to the following proposition:

Proposition 1: Career shocks trigger a change (i.e. an increase or decrease) in (personal or job) resources and/or a change (i.e. an increase or decrease) in demands (either at home or at work).

The increase or decrease in person-job fit

Changes in resources and demands only appeared to influence the ability, motivation, and opportunity to continue working if they triggered some form of change in person-job fit. First, a decrease in resources often resulted in a decrease in person-job fit. For example, one person explained how his person-job fit decreased because of resource loss caused by an illness as follows: '*Then it became clear. I will not be able to keep this up. The company I worked for was very prestigious. The bar was very high. Then I just knew I am not going to be able to keep doing this for the coming 10 years*' (participant 3, 57 year old Food & Beverage manager). As illustrated by the previous quote, the loss of personal resources (e.g. energy) can lead to a reduction in ability and thereby alter the demand-ability fit (i.e. the degree to which the knowledge, skills, and abilities of an individual match with the demands of the job; Kristof-Brown, Zimmerman, and Johnson (2005)). A change in job resources on the other hand can lead to a change in organizational supply and thereby alter the needs-supply fit (i.e. the degree to which the needs of the individual match with what the organization supplies; Kristof-Brown et al. (2005)). For example, several persons gained autonomy or challenge in their new jobs, which

enhanced their needs-supply fit as illustrated by the following quote: '*That was very nice. I could do more my own thing there, you know?*'. However, in some cases a loss of resources led to a reduction in needs-supply fit: '*You just feel completely abandoned. Actually it is like this, you got an accident at work because they were at fault and then you started working to soon because of bad advice from the company doctor because of which you end up in bed again. Actually you got to this point because of inability of your employer twice, than you are working very hard to recover and on top of that they kick you for the third time, yes sorry you have been sick for two years now so you have to leave. That really is not nice to hear*' (participant 9, 51 year old nurse). The misfit resulting from the loss of resources in turn led to decreases in the ability, motivation, and/or opportunity to continue working, whereas improved fit led to increases in the ability, motivation, and/or opportunity to continue working. This led to the following proposition:

Proposition 2: Increases in resources lead to increases in the ability, motivation, and opportunity to continue working, whereas decreases in resources lead to decreases in the ability, motivation, and opportunity to continue working by altering the person-job fit.

An increase in demands was not necessarily problematic, as long as the demands-ability fit was not harmed. Sometimes an increase in demands even led to an increase in fit. To illustrate, one participant mentioned about a new challenging project '*I just jumped at that opportunity. I loved doing that. Amazing! It gave me so much energy and it was nice to do this in a set timetable, budget, financial resources, you name it!*' (participant 3, 57 year old Food & Beverage manager). If an increase in demands, either at home or at work, was not accompanied with an increase in personal (e.g. energy) or job (e.g. autonomy) resources, this caused a misfit between the demands and abilities of this person, which in turn resulted in decreased levels of the ability, motivation, and/or opportunity to continue working. For example, one person describes how she needed support after a merger: '*That moment was quite intense and we were in the middle of the reorganization in '94 with a merger of two hospitals and an entirely new structure. At that time, you really needed to see a lot to survive, to keep your position in the first place. In that period HR fired a lot of people, people had left voluntarily because there were arrangements and there were few of us left. So I went from being the younger supervisor to the oldest in a short time span. Within the organization I found it very difficult to ask HR of colleagues in general for help, so I did a lot by myself actually*' (participant 8, 61 year old

location manager). Furthermore, another participant describes how combining a sick spouse with a new job, without receiving any additional resources, resulted in a burn-out: '*With as a consequence that two or three weeks later my wife needed to go to surgery again. Then I broke down. It was in combination with teaching where I was confronted with crowded classrooms as a starting teacher with a fulltime job. All together that was just too much*' (participant 6, 61 year old financial consultant).

Proposition 3a: Increases in demands lead to decreases in the ability, motivation, and opportunity to continue working through decreasing demands-abilities fit if they were not accompanied with an increase in personal or job resources.

Proposition 3b: Decreases in demands led to increases in the ability, motivation, and opportunity to continue working through enhancing the demands-abilities fit.

The response of the organization

Participants differed in the extent to which they discussed career shocks in private life at work. For example, one participant mentioned '*I have been very open about this at work, listen this relation is not working out. That is why I am having some problems at work*' (participant 30, 57 year old healthcare employee). However, another participant mentioned '*I think a divorce is quite a private event. I felt that I partly caused it and therefore had to deal with it myself*' (participant 3, 57 year old Food & Beverage manager). However, when participants decided to share these career shocks with their employer, they greatly appreciated support, either in the form of job resources or HR practices. One participant mentioned '*They showed interest in me but there was no pressure to come back to work and do my job. This made me feel appreciated and made me feel like I was allowed to be sick and I thought that was a great thing*' (participant 5, 62 year old music teacher). Furthermore, many participants experienced accommodative practices as very helpful in response to career shocks in private life. This type of practice helped them to regain a balance between the increased demands or loss of resources at home and work. For example, one participant mentions '*Yes, well that is how I regained my motivation indeed. Because I only had to work for three days per week I did have the opportunity to take care of things at home*' (participant 1, 61 year old daycare employee). In these periods, the attention often switched to private life. However, for some individuals focusing on work helped them to recover. One participant mentioned '*When I am preoccupied with something I prefer being at*

work. Then I don't think as much as I normally do' (participant 14, 57 year old nurse). Another person was absent for a few weeks to organize her divorce and after this short leave of absence both colleagues and clients expressed how much they missed her during these weeks. This was very supporting for her and made maintaining work a number one priority. She mentioned '*this was very important to me, I could not lose this aspect of my life. There was already a huge thing in my life missing, which I did not want, so work was something I had to maintain. I fought like a lion to maintain my job*' (participant 30, 57 year old healthcare employee). Support of the supervisor and colleagues played an important role because this allowed them to make personal solutions that sometimes allowed them to keep working the same amount of hours. For example, several people liked to work part-time after having children, whereas one person managed to find a balance between work and home demands by switching to night shifts. Other participants explained that because their supervisor gave them the room to leave whenever they needed to, they could continue working despite an increase of demands at home; '*we had a boss that really thought along, you know? I mean that when my kid was ill I could take holidays or get some time to arrange a babysitter*' (participant 14, 57 year old nurse). Such personalized solutions were also very important in the return to work process after a burn-out. By making adjustments to the job based on the needs of this particular individual to avoid another burn-out in the future. For example, one person stopped doing supervisory tasks after returning to work, whereas another participant was offered education to be able to take on tasks that better fitted his needs. This results in the following propositions:

Proposition 4: Receiving support from the supervisor and colleagues after experiencing a career shock in private life can diminish the negative effect of the career shock on the ability, motivation, and opportunity to continue working by increasing resources and reducing demands.

Proposition 5: Receiving accommodative practices after experiencing a career shock in private life can diminish the negative effect of the career shock on the ability, motivation, and opportunity to continue working by reducing demands.

After experiencing career shocks at work, receiving support from supervisors and colleagues was also considered very important. However, unlike career shocks in the private sphere, development and utilization HR practices were more often mentioned as useful compared to accommodative practices. For example, after having a new job or during organizational

change, development (e.g. training) and utilization (e.g. job enrichment, participation in decision making) HR practices were most often mentioned as helpful to adjust to the new job as illustrated by the following quote; '*Yes, also from position, I got more responsibilities in my new job. First it was just the drawing and very occasionally some calculating, but where I work now I really have, yes, all responsibilities of the position so I have to calculate, make offers, the drawing*' (participant 22, 54 year old planner). For example, one person explains how following a course helped him regain his motivation after having a conflict with his supervisor; '*than the opportunity presented itself to follow a course for cultural art education. I followed a dance course, that was a very interesting course by the way. And then I agreed with my director that if I followed that course and would make it that I would start teaching again to the higher grades and that I would be placed in the LD paygrade. If you have the LD paygrade, you also have to teach the higher grades. So I did that course and I was very motivated, that took about two years*' (participant 5, 62 year old music teacher). Support from supervisors and colleagues and HR practices that were offered by the organization were an important element in improving the person-job fit, and not receiving these resources when they were desired were an important element in deteriorating person-job fit as illustrated by the following quote: '*I think I accepted a job here that did not fit me, and I should maybe have asked help. There was someone working there who was already working there for 40 years and who did not support me at all, let me frame it like that. Even though it was intended to be that way. I was supposed to take over some of the work, but he pulled everything towards himself and was very scared to do anything with the management. They knew that and they probably hoped that I could fix this for them, but I am not like that*' (participant 7, 63 year old absenteeism specialist). This leads to the following propositions:

Proposition 6: Receiving support from supervisors and colleagues after experiencing a career shock at work can diminish the effect of the career shock on the ability, motivation, and/or opportunity to continue working by providing additional resources.

Proposition 7: Receiving developmental practices after experiencing a career shock at work can diminish the effect of the career shock on the ability, motivation, and/or opportunity to continue working by increasing resources.

Proposition 8: Receiving utilization practices after experiencing a career shock at work can diminish the effect of the career shock on the ability, motivation, and/or opportunity to continue working by increasing resources.

Even though different organizational responses were preferred after experiencing career shocks in private life compared to career shocks at work, no differences in preferences could be distinguished between the processes that shocks caused. That is, the desired response of the organization did not seem to depend on whether the shock affected demands and resources.

Unfortunately, not all employers provided support in response to career shocks either at work or in private life. When some level of support was expected, organizations aggravated the situation by withholding support. One participant mentioned '*When my mother passed away, not many colleagues expressed their condolences, not even my supervisor. At that time, I was in a bad phase in my life and I called in sick. After some time, I confronted my supervisor with this ordeal and told him this is not the way you should treat people. All he said was that they will review the protocol and that was it*' (participant 28, 62 year old truck mechanic). In several cases, it appeared as if this lack of support was the reason that an event turned into a career shock. As people were expecting some form of support or appreciation from their employer, not receiving it was similar to losing resources and thus aggravated the effect of the career shock. One participant explained how a violent confrontation with clients turned into a career shock because she did not receive any support at work. She explained '*I was there in the middle and received all the punches. I made a report and nobody, not even one of my colleagues asked how I was doing. I tried to discuss it in a work meeting, but it was swept under the table*' (participant 15, 57 year old nurse). The lack of support from colleagues and her supervisor as well as the lack of appreciation resulted in a drop of motivation for her. This results in the following proposition:

Proposition 9: A lack of response from organizations to career shocks either in private life or at work aggravates the effect of the career shock on the ability, motivation, and opportunity to continue working.

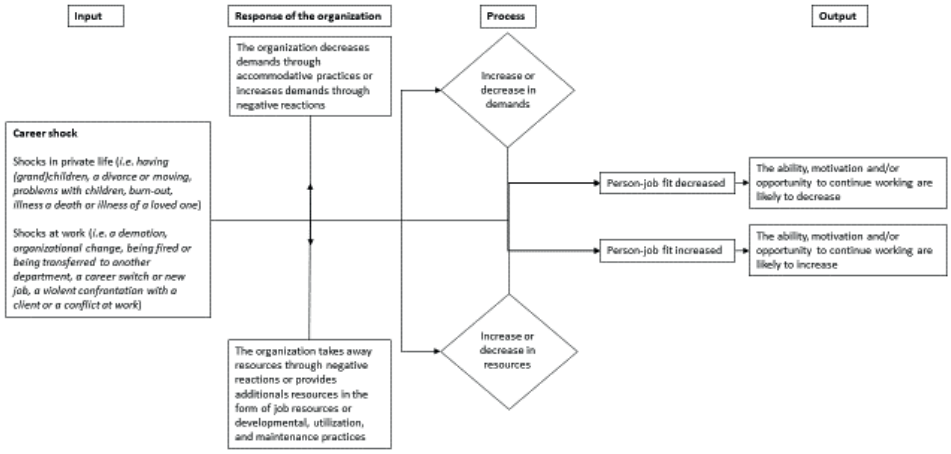
In some cases, the effect of the career shock was aggravated even further, when the organization threatened to fire the employee because of the career shock. One firefighter, for example, felt pressure to leave his job from the HR officer after having knee surgery: '*When I had a meeting with my supervisor at Human Resources, I was suddenly told that I had been reported sick for over three months and should go with pre-retirement. That I could not work*

those extra years in active service, that I could not do that anymore. … I was very disappointed because the fire department wanted to say goodbye to me' (participant 10, 61 year old firefighter). Furthermore, a woman mentioned: '*It was only after having my second child that my employer believed that it was undesirable that I would keep working, he called me a degenerate mother. Of course, I did not like that, plus the fact that I had some troubles with breastfeeding. That made me decide to quit my job*' (participant 25, 58 year old administrative assistant). These negative responses created a lot of stress, led to an increase in demands (e.g. job insecurity), and a severe loss of resources (e.g. perceived support). This often caused a major, and often long lasting drop in the opportunity to continue working as well as the motivation to continue working. Examples of such negative responses to the career shock were only found in response to career shocks in private life. However, some career shocks at work (e.g. being fired) can be seen as a negative response of the organization and triggered a similar process. This results in the following proposition:

Proposition 10: A negative response of the organization aggravates the effect of the career shock on the ability, motivation, and/or opportunity to continue working.

The 10 propositions are summarized in Figure 5.2. In summary, career shocks can trigger two processes, namely; (1) a change in demands and (2) a change in resources. These changes, in turn, can trigger a change in person-job fit. A change in demands can cause a change in demands-ability fit. A change in personal resources can also influence the demands-abilities fit as the ability of the person is changed. A change in job resources can alter the needs-supply fit because the supply by the organization is changed. This change in person-job fit (i.e. demands-ability or needs-supply fit) in turn triggers an increase or decrease in the ability, motivation, and opportunity to continue working. Organizations can diminish these effects by offering supervisor and colleague support and accommodative HR practices in response to career shocks in private life, as well as job resources and developmental and utilization practices in response to career shocks at work. A lack of response from the organization or a negative response of the organization leads to a loss of resources and can cause additional strain.

Figure 5.2. Process model of the influence of career shocks on the ability, motivation, and opportunity to continue working



5.4 Discussion

This qualitative study investigated the following research question: *How do career shocks influence the development of the ability, motivation, and opportunity to work over time and how do organizations respond to these career shocks?* This was examined with the use of semi-structured interviews in which 33 participants of 50 years and older were asked to reflect on their careers up to now.

The influence of career shocks on sustainable careers

This study contributed to the literature on sustainable careers by providing insights in how participants experienced the influence of career shocks on the development of their ability, motivation, and opportunity to (continue) working). Based on COR theory (Hobfoll, 1989; Hobfoll, 2001), we expected that career shocks would lead to resource gain or resource loss cycles which, in turn, would lead to fluctuations in the ability, motivation, and opportunity to continue working. Indeed, we found that career shocks could lead to increases or decreases in resources. A change in personal resources harms the personal ability, which in turn triggers a change in demands-abilities fit. A change in job resources, on the other hand, changes the supply of the organization, which in turn triggers a change in the needs-supplies fit. This change in the demands-ability or needs-supply fit, in turn, leads to increases or decreases in the ability, motivation, and/or opportunity to continue working. In most cases, individuals were eventually able to recover from decreases in these three indicators of sustainable careers. However, in some cases decreases led to periods of (involuntary) unemployment or permanent declines in one or multiple indicators of sustainable careers. Moreover, one additional process mechanism was uncovered, namely changes in demands. Several career shocks led to increases or decreases in demands. For example, organizational change often led to an increase in workload. Changes in demands in turn trigger a change in the demands-abilities fit. However, an increase in demands was not necessarily problematic, and could even lead to increases in fit when the individual had sufficient resources available (De Stobbeleir, De Boeck, & Dries, 2016). Furthermore, the impact of the career shock on the ability, motivation, and opportunity to continue working is determined by the way the person-job fit (i.e. demands-ability fit or needs-supply fit) is altered. If the person-job fit is improved because of the career shock, then the ability, motivation, and opportunity to continue working are enhanced, whereas if the person-job fit deteriorates because

of the career shock, the ability, motivation, and opportunity to continue working decline. As can be seen in the process model in Figure 5.2, person-environment fit theory (Edwards et al., 1988) and the Job Demands-Resources model (Demerouti et al., 2001) can be used to explain the central mechanisms in the process through which career shocks on the ability, motivation, and/or opportunity to continue working. These theories can be used to supplement the process outlined by COR theory (Hobfoll, 1989; Hobfoll, 2001).

The role of the organization

The second contribution of this paper was to show how HR practices and job resources can be used to prevent negative effects of career shocks on sustainable career outcomes. In line with COR theory (Hobfoll, 1989; Hobfoll, 2001), HR practices and job resources appeared to be helpful when facing career shocks. The nature of the career shock influenced what type of HR practice was desired. For example, after career shocks in the *work domain,* developmental and utilization practices were most valued, whereas after career shocks in the *private domain,* the focus was on accommodative practices. However, support of the supervisor was mentioned as being important for all career shocks. This seems to indicate that supervisors might be able to prevent negative effects of career shocks on the ability, motivation, and opportunity to continue working. More specifically, supervisors play an important role in tailoring the solution to the individual employee (e.g. I-deals) as participants seemed to have very different needs after the career shocks. I-deals are personalized work arrangements that employees negotiate with their employer to customize their job to their personal needs (Rousseau, 2005). Supervisors play a crucial role in the creation of I-deals as they have the resources and power necessary to authorize these deals (Rofcanin, Kiefer, & Strauss, 2017).

The findings also showed a “dark side of HRM”. In a few cases, employees experienced a complete lack of support or were actively disadvantaged by their employer because of the career shocks they faced. In these cases, it was much harder for participants to regain previous levels of their ability, motivation, and opportunity to continue working. It is therefore important to acknowledge that a lack of organizational resources can have a major negative impact on the sustainability of individual careers.

Limitations and future research

This study is subject to five main limitations. First, due to the retrospective nature of the interviews, recollection bias might have occurred because it may have been hard for participants to recall experiences from the beginning of their career (Bleijenbergh, 2005). However, Pillemer (2009) argues that important life events, such as career shocks, are easier to recall compared to everyday experiences. Furthermore, the drawings helped participants to recall events and order information. Nevertheless, participants found it difficult to recall which HR practices were offered specifically in response to the career shocks. They mentioned HR practices that were offered in general throughout their career and HR practices that they used after having a career shock, but they could not recall whether other specific HR practices were offered at those specific moments. This could either indicate that they do not remember and recollection bias has occurred, or that a very limited amount of HR practices were offered and participants made use of all the practices that were offered. Therefore, for future research we would recommend to interview participants closer after the occurrence of the career shock to reduce recollection bias. A cohort study might be needed to cover all possible career shocks in which a number of people from each cohort in the working population is asked to reflect on career shocks that happened to them in the last 10 years.

Second, the work environment has changed significantly since the participants of this study entered the labor market. For example, it has become more accepted for women to continue working after having children meaning that organizations offer more HR practices nowadays to working mothers compared to when the participants of the current study started their careers. Therefore, it is important to interpret the findings of these results with the age of the participants in mind. Future qualitative studies could overcome this problem by using cohort designs as mentioned above.

Third, due to the small sample size and qualitative design the results of this study cannot be generalized. However, they can indicate interesting areas to explore with quantitative studies. For example, the propositions that are formulated in this study could be tested with a quantitative design. Diary studies might be particularly relevant for this purpose as they can capture within person changes over time in the days after the career shock (Bolger, Davis, & Rafaeli, 2003; Ohly, Sonnentag, Niessen, & Zapf, 2010). However, it will be particularly difficult to find

participants who are willing to fill in a questionnaire right after a career shock when they are most likely to be pre-occupied by the career shock.

Fourth, the results showed that career shocks did not only influence the ability, motivation, and opportunity to continue working through a change in resources, but also through a change in demands and person-job fit. It would be interesting to integrate the Job Demands-Resources model (Demerouti et al., 2001) and person-environment fit theory (Edwards, Caplan, & Van Harrison, 1998) into studies examining the influence of career shocks on sustainable career outcomes to investigate these mechanism in more detail.

Fifth, we focused on the role of job resources and HR practices in the process through which career shocks influence the ability, motivation, and opportunity to continue working. However, during the interviews it became clear that individuals themselves also play a large role in this process through self-management and job crafting behaviors. Moreover, it became explicit that supervisors play an important role in offering HR practices, job resources, and I-deals. I-deals might work better in response to general HR practices and job resources as they can be adapted to the specific circumstances of the employee who is facing a career shock. We recommend that in future research on this topic the role of self-management activities and I-deals are more explicitly examined.

Finally, in this study we focused explicitly on the influence of career shocks on the ability, motivation, and opportunity to work. However, career shocks might also influence other career-related outcomes. For example, Akkermans et al. (2018) propose that career shocks can also trigger thought process regarding one's career. This sense making process of career shocks would be an interesting avenue for future research. Moreover, a more inductive approach in which the outcomes of career shocks are not predetermined could also be very interesting in future research.

Practical implications

This study has several important implications for practice. First, this study highlights the importance of supervisor support when employees face career shocks. Simply being heard, acknowledged, and appreciated appears to be very important for employees who are facing career shocks. Furthermore, participants had very different needs when recovering from career shocks, indicating that a one-size-fits-all approach is not suitable. The supervisor should talk to

their employees in these times and offer tailor-made solutions. Training may be necessary to equip supervisors with the right tools. Such a training should focus on the HR practices that are available within the organization and how supervisors can structure the conversation with their employees on career shocks. Second, the bundles of HR practices suggested by Kooij et al. (2014) appear to be helpful while facing career shocks. Accommodative practices appear to be helpful when the employee faces career shocks in the private domain. Development and utilization practices appeared to be helpful when facing career shocks in the work domain.

Conclusion

This study showed with retrospective narrative interviews that career shocks are important factors shaping the (un)sustainability of careers. Even though most participants were able to recover from career shocks, partly due to HR practices and job resources, organizations can also aggravate the effect of career shocks.

CHAPTER 6

Disruptiveness of Private Life Events and Work Ability: The Moderation Roles of Use of On-the-job Training and Supervisor Support Climate

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Abstract

Although previous research on work ability extensively examined the role of job demands in predicting work ability, this research largely overlooked the influence of home demands such as disruptive private life events as a potential predictor of work ability even though home demands are assumed to influence work outcomes in a similar way to job demands. The aim of this study is to contribute to the literature on work ability by examining home demands as a potential predictor of work ability. More specifically, we investigate whether private life events have a negative impact on work ability, and examine whether the use of on-the-job training and a positive supervisor support climate can buffer this relationship. To this end, we conducted a study with a sample of 2123 healthcare employees from 26 health institutions. Results showed that private life events have a negative impact on work ability. Moreover, use of on-the-job training and supervisor support climate do not moderate this relationship. However, our results indicate that the beneficial effect of on-the-job training was significantly lower for individuals who faced high disruptive life events in a work environment that was characterized by low levels of supervisor support climate compared to individuals who faced high disruptive life events in a work environment that was characterized by high levels of supervisor support climate. This study gives managers in the healthcare sector insight into the job and organizational resources that are effective in overcoming the negative impact of private life events on work ability.

6.1 Introduction

The work ability construct was developed by Ilmarinen and colleagues of the Finnish Institute of Occupational Health in the 1980s to determine factors that predicted early departure from the workforce amongst Finnish workers (see for example Ilmarinen, Tuomi, Eskelinen, Nygård, Huuhtanen & Klockars, 1991; Tuomi, Ilmarinen, Jahkola, Katajarinne & Tulkki, 1998; Tuomi et al., 1997). They argued that work ability is determined by the balance between one's personal resources and work characteristics and is defined as the mental and physical ability to meet the demands of your job (Ilmarinen, 2001). Work ability is shown to predict important work outcomes such as sickness absence, early retirement, disability status, turnover intentions, and company performance (Camerino et al., 2006; McGonagle, Fisher, Barnes-Farrell & Grosch, 2015; Sell, 2009; von Bonsdorff, Huuhtanen, Tuomi & Seitsamo, 2010; von Bonsdorff, Zhou, Wang, Vanhala, von Bonsdorff & Rantanen, 2018). Due to the predictive power of work ability, research on this construct has expanded rapidly (Cadiz, Brady, Rineer & Truxillo, 2018).

A large part of this body of research has examined the impact that job demands have on work ability (see for example Brady, Truxillo, Cadiz, Rineer, Caughlin & Bodner, 2019; McGonagle et al., 2015; Pak, Kooij, De Lange & Van Veldhoven, 2019; Van den Berg, Elders, de Zwart & Burdorf, 2009). In line with the Job Demands-Resources (JD-R) model (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner & Schaufeli, 2001), the systematic reviews of Van den Berg et al. (2009) and Pak et al. (2019) and the meta-analysis of Brady et al. (2019) reveal that job demands generally have a negative effect on work ability. Although the literature on work ability also examines the impact of job resources, personal resources, and lifestyle (McGonagle et al., 2015; Van den Berg et al., 2009), home demands caused by private life events are largely overlooked as a potential predictor of work ability (Georgellis, Lange & Tabvuma, 2012; Hakanen & Bakker, 2017). However, private life events can be disruptive (Akkermans, Seibert & Mol, 2018) and can lead to the depletion of one's personal resources (Ten Brummelhuis & Bakker, 2012). This loss of personal resources is likely to harm work outcomes such as work ability (Bakker, Du & Derks, 2018).

In line with the JD-R model, previous research on work ability suggests that job and organizational resources have a positive effect on work ability (Brady et al., 2019; McGonagle et al., 2015; Pak et al., 2019; Van den Berg et al., 2009) and might counterbalance the negative effect of job demands. Ten Brummelhuis and Bakker (2012) suggest that job and organizational

resources might also be effective in counterbalancing the negative effects of home demands (e.g. disruptive private life events) on work outcomes (e.g. work ability). Building on these studies, the aim of this study is to examine the impact of disruptive private life events on work ability and to examine the moderating role of a job resource (i.e. the use of on-the-job training (Wheeler, Halbesleben & Shanine, 2013)) and an organizational resource (i.e. supervisor support climate (Dysvik & Kuvaas, 2012)) on this relationship.

This paper aims to contribute to the literature on work ability in three ways. First, this paper examines to what extent disruptive private life events influence work ability. Currently, empirical studies on work ability mostly focus on job demands, personal resources, and job resources as predictors of work ability. With this study, we add home demands (i.e. demands caused by disruptive private life events) to the predictor space of work ability to achieve a more comprehensive understanding of the predictors of work ability and to examine whether home demands can be added to the JD-R model. Second, this paper examines to what extent job (i.e. the use of on-the-job training) and organizational (i.e. supervisor support climate) resources can buffer the relationship between private life events and work ability. In this way, we expand our knowledge of how organizations can facilitate work ability. This allows us to formulate practical recommendations to organizations regarding the maintenance of work ability when employees face disruptive private life events. Third, we take a multilevel perspective by studying supervisor support climate on the organizational level and by examining the three-way interaction between supervisor support climate, the use of on-the-job training, and the disruptiveness of private life events on work ability. Studies that jointly examine the impact of job and organizational resources on work ability are scarce. Therefore, this study will provide more insight into how job and organizational resources interact in the prediction of work ability, answering the call made by Oakman, Neupane, Proper, Kinsman and Nygård (2018).

Theoretical Background and Hypotheses Development

In the work ability literature, the JD-R model is often used to that job demands invoke strain and thereby harm work ability (Brady et al., 2019; McGonagle et al., 2014; McGonagle et al., 2015; Pak et al., 2019). Job demands are defined as ‘those physical, social, or organizational aspects of the job that require sustained physical or mental effort and are therefore associated with certain physiological and psychological costs’ (Demerouti et al., 2001, p. 501). Physical demands, effort-reward imbalance, and unfavorable working times are the job demands that are

most often studied in relation to work ability and are often found to have a negative effect on work ability (Pak et al., 2019). Furthermore, Van den Berg et al. (2009) revealed that mental demands are negatively associated with work ability in most studies. Moreover, previous research revealed that task demands (Airila, Hakanen, Punakallio, Lusa & Luukkonen, 2012), quantitative demands, environment demands (McGonagle et al., 2014), role overload (McGonagle et al., 2015), role insufficiency, role ambiguity, responsibility (Lian et al., 2016), working in a painful or tiring position, carrying heavy loads (Bugajska & Łastowiecka, 2005), and organizational injustice (Elovainio, Kuusio, Aalto, Sinervo & Heponiemi, 2010), thermal discomfort, and verbal abuse (Fischer et al., 2006) all had a negative effect on work ability.

Home demands are likely to have similar effects on work ability as job demands as they both deplete personal resources and thereby harm work ability (Ten Brummelhuis & Bakker, 2012). In this study, we are particularly interested in the role of private life events as home demands, as previous research indicates that private life events could be particularly taxing for work outcomes (Akkermans et al., 2018; Bakker et al., 2018). According to Specht, Egloff, and Schmukle (2011) private life events include: (1) normative transitions in life, for example, marriage, (2) meaningful changes, for example, the birth of a child, and (3) major individual experiences, for example, the death of a family member. Akkermans et al. (2018) argue that major life events can differ in the extent to which they are unexpected and uncontrollable. The more uncontrollable and unexpected a life event, the more likely that this event will disrupt work ability. This indicates that the degree to which private life events are disruptive can differ depending on the circumstances and the evaluation of the private life event. Therefore, in this study we are particularly interested in the extent to which participants perceived private life events as disruptive and we focus on the degree to which the disruptiveness of private life event affects the work ability of workers.

Ten Brummelhuis and Bakker (2012) propose that home demands can have similar negative effects on work outcomes as job demands. In line with this proposition, Bakker et al. (2018) showed that private life events can cause losses in personal energetic and cognitive resources. This loss in resources makes it difficult to focus on anything other than the life event (Luhmann, Hofmann, Eid & Lucas, 2012) and therefore inhibits the ability to work. Moreover, a qualitative study by Pak, Kooij, De Lange, Meyers, & Van Veldhoven (under review) found that

disruptive private life events can result in an increase in home demands and a decrease in personal resources which in turn can lead to drops in work ability. This results in the following hypothesis:

> **Hypothesis 1:** The disruptiveness of private life events is negatively related to work ability.

The moderation roles of the use of on-the-job training and supervisor support climate

Based on the JD-R model, past research on work ability also extensively examined the role of job resources (Brady et al., 2019; McGonagle et al., 2015; Pak et al., 2019; Van den Berg et al., 2009). Job resources are defined as 'those physical, psychological, social, or organizational aspects of the job that may do any of the following: (a) be functional in achieving work goals, (b) reduce job demands at the associated physiological and psychological costs, (c) stimulate personal development and growth' (Demerouti et al., 2001, p. 501). In line with the proposition of the JD-R model that job resources alleviate strain and therefore have a positive effect on work outcomes, job resources are generally found to have a positive effect on work ability (Brady et al., 2019; Pak et al., 2019). Previous studies most often examined autonomy, skill discretion, and social support and most studies find a positive effect of these job resources on work ability (Pak et al., 2019; Van den Berg et al., 2009). Furthermore, several studies found a positive effect of development practices on work ability (Ahlstrom, Hagberg & Dellve, 2013; Aittomäki, Lahelma & Roos, 2003; Bugajska & Łastowiecka, 2005).

Moreover, the JD-R model proposes that job resources can buffer the negative impact of job demands on work outcomes such as work ability (Bakker & Demerouti, 2007). Ten Brummelhuis and Bakker (2012) argue that job resources might be equally effective in counterbalancing the negative effects of home demands on work outcomes. In this study we will focus particularly on the use of on-the-job training as a job resource and supervisor support climate as an organizational resource as previous research indicates these resources are particularly beneficial for work ability (Ahlstrom et al., 2013; Carmen Martinez, da Silva Alexandre, Dias De Oliveira Latorre & Marina Fischer, 2016). Furthermore, in line with the Selection-Optimization-Compensation (SOC) model (Baltes & Baltes, 1990) individuals will use different strategies to maintain their health over the lifespan. On-the-job training can facilitate optimization strategies, whereas a supervisor support climate can facilitate compensation strategies. By offering these job resources organizations might be able to provide employees with

the resources that they need to cope with disruptive private life events and, thereby, prevent negative effects on work ability.

With regard to the use of on-the-job training, previous studies found a positive effect on work ability (Ahlstrom et al., 2013; Aittomäki et al., 2003; Bugajska & Łastowiecka, 2005). To our knowledge, no study to date examined the effectiveness of on-the-job training on work ability amongst employees dealing with private life events. However, in line with the JD-R model we propose that by providing on-the-job training as a job resource, which has been shown to affect work ability under normal circumstances, the negative effects of home demands caused by disruptive private life events on work ability will be diminished. This results in the following hypothesis:

> **Hypothesis 2:** The use of on-the-job training moderates the relationship between the disruptiveness of private life events and work ability in such a way that the negative relationship between the disruptiveness of private life events and work ability is weakened when on-the-job training is used.

Moreover, previous studies show that supervisor support climate is an important factor in enhancing work ability (Alavinia, de Boer, Van Duivenbooden, Frings-Dresen & Burdorf, 2009; Carmen Martinez et al., 2016; Sugimura & Thériault, 2010). Specifically, supervisors can promote work ability by providing emotional support and feedback (Stordeur, D'hoore, van der Heijden, di Bisceglie, Laine & van der Schoot, 2003).

In line with the JD-R model Koolhaas, van der Klink, de Boer, Groothoff and Brouwer (2014) found that organizational support was a particularly important job resource to maintain work ability for workers with a chronic disease. Additionally, Plaisier, Broese van Groenou and Keuzenkamp (2015) found that organizational support was an important factor in the maintenance of work outcomes for caregivers. Moreover, Pak et al. (under review) found that supervisor support was the most important factor in regaining work ability after experiencing disruptive life events. Therefore, we expect that a supervisor support climate will be an important resource to buffer the negative effect of home demands caused by disruptive life events on work ability. This is reflected in the following hypothesis:

> **Hypothesis 3:** Supervisor support climate moderates the relationship between the disruptiveness of private life events and work ability in such a way that when supervisor

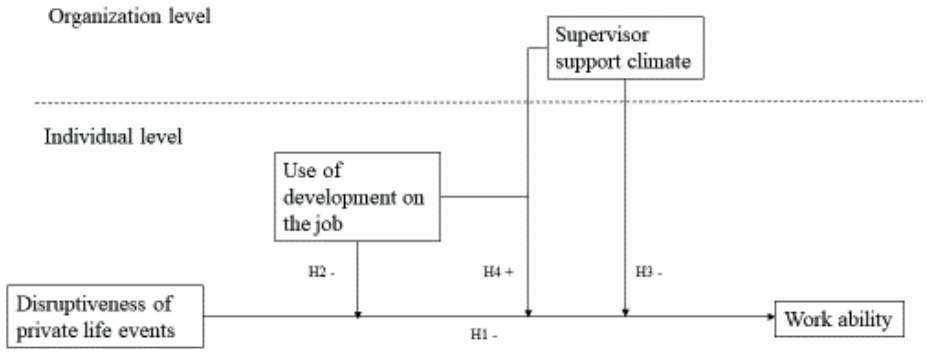
support climate is positive the negative relationship between the disruptiveness of private life events and work ability is weakened.

Finally, resources are proposed to have a cumulative effect (Hobfoll, 2001). Therefore, we expect that the buffering effect of on-the-job training is stronger when combined with a supervisor support climate. In line with this proposition Khilji and Wang (2006) and Purcell and Hutchinson (2007) found that supervisors play an important role in the delivery of Human Resource practices as a form of job resources. More specifically, Ahlstrom et al. (2013) found that the effect of job resources (e.g. on-the-job training) on work ability was strengthened when there were supportive conditions in the company such as having a supervisor support climate. Therefore, we expect that the moderating effect of the use of on-the-job training on the relation between the disruptiveness of private life events and work ability is strengthened by a supervisor support climate. This is reflected in the following hypothesis:

Hypothesis 4: The beneficial effect of on-the-job training on the relation between the disruptiveness of private life events and work ability will be stronger when combined with high levels of supervisor support climate.

A visualization of the research model can be found in Figure 6.1.

Figure 6.1 Conceptual model



6.2 Method

Sample and procedure

This study is part of the “healthy healthcare” project. The aim of this project was to get more insight into the factors that determine the extension of working lives amongst healthcare workers. Twenty-six healthcare institutions in The Netherlands took part in this project. Data

were collected via an online questionnaire. All employees of the 25 participating healthcare institutions were approached to take part in this study (N = 6866). Of those 6866 employees, 31.1% (N = 2132) responded to the survey. The age of the respondents ranged from 18 to 85 (M = 46.32, SD = 11.55). The vast majority of the respondents were female (84.1%, N = 1794). On average they worked in their current position for 14.71 years (SD = 10.69). Furthermore, 92.70% of the respondents had a fixed contract (N = 1977).

Measures

Disruptiveness of private life events. Respondents were asked to indicate whether or not they experienced any major life events in the past year. If they indicated that they experienced a major life event in their private life, they were asked in a follow-up question whether this major life event occurred in private life. Next, they were asked to indicate to what extent this life event influenced their daily life on a scale from 1 (the life event did not affect daily life at all) to 10 (daily life was completely devoted to the life event). Individuals who indicated that they did not experience any private life events in the past year were automatically given a score of 1 indicating that their daily life was not disrupted by a private life event.

On-the-job training. The use of on-the-job training was measured with a single item measure. Participants were asked to indicate whether they have made use of the practice 'development on the job' in the past year.

Supervisor support climate. Supervisor support was measured with six items from the VBBA 2.0 (Van Veldhoven, Prins, Van der Laken & Dijkstra, 2014). An example item of this scale is "Can you ask your direct supervisor for help when needed?". The items were measured on a four-point scale ranging from "daily" (1) to "never" (4). To facilitate interpretation we reverse scored the positively worded items so that a high score on the items reflects high amounts of supervisor support. Scale reliability was good (Cronbach's $\alpha = .82$). Scores were aggregated to the organization level to reflect the supervisor support climate. The median $r_{wg(j)}$ across the organizations was .90 and ranged from .85 to .97. This indicates that across all organizations included in this research, organizational members shared perceptions of supervisor support. Furthermore, the interrater reliability indices supported aggregation (ICC(1) = .21 and ICC(2) = .95). Additionally, the results of one-way analysis of variance (ANOVA) showed that there were significant differences in organizational-level means for supervisor support, $F(25, 1973)$

= 6.22, $p < .01$. Taken together, this evidence supports the aggregation of individual supervisor support scores to the organizational level to form the measure of supervisor support climate.

Work ability. Work ability was measured with the Work Ability Index (WAI) (Tuomi et al., 1998). The WAI consists of sixty items that cover seven constructs. An example item of this index is "Assume that your work ability at its best has had a value of 10. How many points would you give your current work ability?" Scores on each dimension were added together. The minimum score of this index is 7 and the maximum score is 49. Scale reliability was considered to be somewhat low (Cronbach's $\alpha = .66$). However, as Radkiewicz, Widerszal-Bazyl and Group (2005) found that reliability of the WAI varied between .54 and .72 in various samples, we decided not to make any amendments to the scale.

Control variable. Age and gender were used as control variables. Age was measured as a continuous variable, whereas gender was measured with a dichotomous variable with males as the reference category.

Analysis

We used multilevel analysis in M-Plus (version 8) to test our hypotheses. We specified a two-level model. At level 1 (i.e. the individual level) we specified random slopes of disruptiveness of life events (to test Hypothesis 1), the use of on-the-job training, and the two-way interaction between disruptiveness of private life events and on-the-job training (to test Hypothesis 2) on work ability. At level 2 (i.e. the organization level) we specified the direct effect of supervisor support climate on work ability, the cross-level moderation effect of supervisor support climate on the random slope of disruptiveness of life events on work ability (to test Hypothesis 3), and the cross-level moderation effect of supervisor support climate on the random slope of the two-way interaction between the disruptiveness of private life events and the use of on-the-job training on work ability (to test Hypothesis 4). We also controlled for the cross-level interaction of supervisor support climate on the random slope of the use of on-the-job training on work ability in our model. To facilitate the interpretation of the findings the disruptiveness of private life events (individual level) and the use of on-the-job training (individual level) were group-mean centered and supervisor support climate (aggregated variable at the organizational level) was grand-mean centered (Hofmann & Gavin, 1998).

6.3 Results

As can be seen in Table 6.1, the disruptiveness of private life events was negatively correlated with work ability (r = -.24, p < .01) and age (r = -.05, p = .01).

Table 6.1 Correlation table

	M.	Individual level SD.	Team level SD	1.	2.	3.	4.
Level 1							
1. Age	46.32	11.55					
2. Gender				-.11**			
3. Disruptiveness of private life events	2.98	3.14		-.05*	0.03		
4. The use of on-the-job training	.27	.44		-.03	-.01	0.01	
5. Work ability	40.98	5.16		-.18**	-.07**	-.24**	.08**
Level 2							
6. Supervisor support climate	3.34		.22				

Note. * = p < .05, ** = p < .01

We used the formulas of Snijders and Bosker (1999) to calculate the pseudo-R^2 (~R^2), which reflects the proportional reduction of Level 1 and Level 2 errors for including the predictors of the model. The predictors accounted for 10% of the total variance in work ability suggesting that the disruptiveness of private life events, the use of on-the-job training, and supervisor support climate indeed had a significant role in predicting work ability.

The results of the multilevel analysis are reported in Table 6.2. The disruptiveness of private life events was negatively related to work ability (γ = -.39, p < .01), which supports Hypothesis 1. Although the use of on-the-job training (γ = .82, p = .03) and supervisor support climate (γ = 2.20, p < .01) had positive effects on work ability, they did not buffer the negative effect of disruptiveness of private life events on work ability. Therefore, Hypotheses 2 and 3 are not supported. In line with Hypothesis 4, the three-way interaction among the disruptiveness of private life events, the use of on-the-job training, and supervisor support climate was significant on work ability (γ = .78, p < .01). A visualization of this three-way interaction effect can be found in Figure 6.2 in which the use of on-the-job training and supervisor support climate are plotted at 1 SD above and below the mean, whereas the full range was used for plotting the

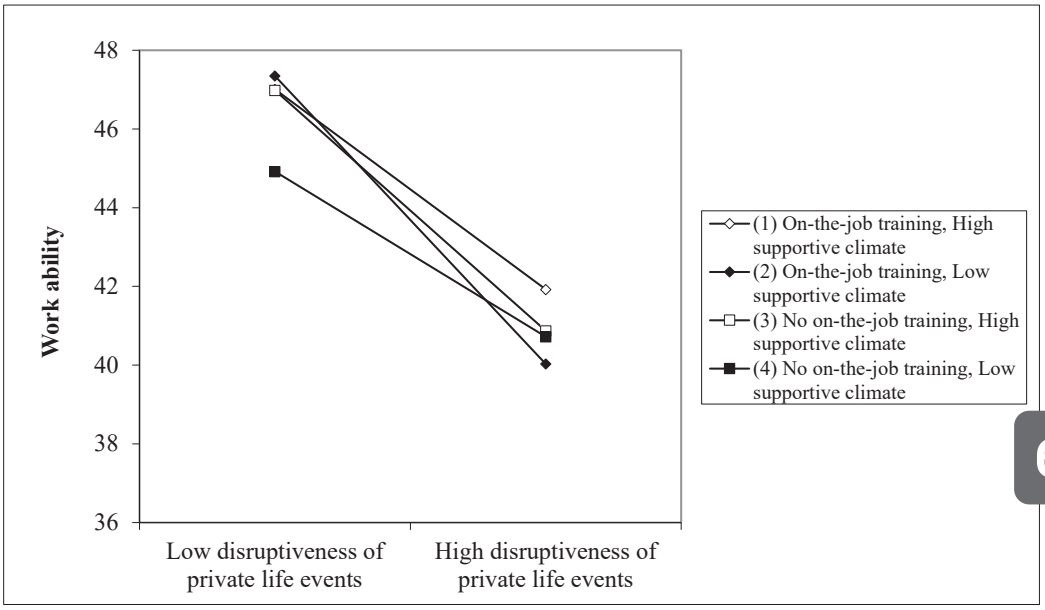
predictive effect of disruptiveness of private life events. As Figure 6.2 illustrates, the beneficial effect of on-the-job training (vs. no on-the-job training) was significantly lower for individuals who faced high disruptive life events in a work environment that was characterized by low levels of supervisor support climate compared to individuals who faced high disruptive life events in a work environment that was characterized by high levels of supervisor support climate (simple comparison coefficient = 1.75, p = .01). In other words, the beneficial effect of on-the-job training was more likely to manifest when the supervisor support climate was higher. For individuals who faced low disruptive life events, those who received no on-the-job training and were in a work environment that was characterized by low levels of supervisor support climate had the lowest levels of work ability (simple comparison coefficient = -1.57, p = .01).

Table 6.2 Estimates of unstandardized path coefficients from path analysis

	Work ability	
	B	SE
Intercept	43.31**	1.08
Control variables		
Age	-.06**	.01
Gender	.08	.35
Level 1 predictors		
Disruptiveness	-.39**	.05
Use of on-the-job training	.82*	.37
Use of on-the-job training * disruptiveness	-.09	.07
Level 2 predictor		
Supervisor support	2.20**	.64
Cross-level interactions		
Disruptiveness * supervisor support climate	.03	.20
Use of on-the-job training * supervisor support climate	-.91	.51
Disruptiveness * use of on-the-job training * supervisor support climate	.78**	.25

Note. * p < .05, ** p < .01

Figure 6.2 The three-way interaction effect of the use of on-the-job training and supervisor support climate on the relationship between the disruptiveness of private life events and work ability



6.4 Discussion

This study investigated to what extent the disruptiveness of private life events was related to work ability and whether the use of on-the-job training and a supervisor support climate moderated this relation. This was examined using a cross-sectional study among 2123 healthcare employees. The findings indicated that disruptive private life events are negatively related to work ability. Furthermore, our results indicate that the beneficial effect of on-the-job training was significantly lower for individuals who faced high disruptive life events in a work environment that was characterized by low levels of supervisor support climate compared to individuals who faced high disruptive life events in a work environment that was characterized by high levels of supervisor support climate.

Theoretical implications

This study contributes to the literature on work ability in four important ways. First, this paper is one of the few studies that related major life events in private life to work ability.

Previous research on work ability mainly focused on lifestyle factors, personal resources, and job characteristics (see for example Van den Berg et al., 2009) and so far, home demands such as major life events were not considered as a predictor of work ability. However, as our study revealed that disruptive private life events are negatively related to work ability it is important to include this type of predictor more often to get a better understanding of how and when work ability is affected by major life events. Our findings support the notion of Ten Brummelhuis and Bakker (2012) who propose that home demands can have a negative impact on outcomes in other domains, such as work. This suggests that the JD-R model can be extended with home demands as a predictor of work outcomes.

Second, we examined to what extent the use of on-the-job training and a supportive climate can buffer the relationship between the disruptiveness of private life events and work ability. This revealed that the use of on-the-job training and a supportive climate both have a positive direct effect on work ability, thereby supporting the findings of earlier studies (see for example Ahlstrom et al., 2013; Aittomäki et al., 2003; Alavinia et al., 2009; Bugajska & Łastowiecka, 2005; Carmen Martinez et al., 2016; Sugimura & Thériault, 2010). However, contrary to our expectations based on the JD-R model the use of on-the-job training and a supportive climate did not buffer the negative effect of private life events on work ability. McGonagle et al. (2015) and McGonagle et al. (2014) also tested the moderation hypothesis of the JD-R model for work ability. Although McGonagle et al. (2014) found that high levels of job resources where most beneficial for work ability when job demands were high, McGonagle et al. (2015) did not find support for the moderation role of job resources on the relationship between job demands and work ability. This is in line with the broader line of research into the interaction between resources and demands (De Lange, Taris, Kompier, Houtman & Bongers, 2003; Van der Doef & Maes, 1999) which shows that the majority of studies do not find significant interaction effects. Therefore, Taris (2006) criticizes that there might not be enough support to continue hypothesizing these interaction effects. Van der Doef and Maes (1999) and De Jonge and Dormann (2006) propose that in order for the moderation hypothesis of the JD-R model to work demands and resources need to be matched. Therefore, it might be plausible that home resources such as spousal support might be more relevant to buffer the negative consequences of disruptive life events.

Third, our results indicated that the beneficial effect of on-the-job training on work ability is lost for individuals who face highly disruptive life events in an organization with a low supervisor support climate, whereas individuals who face highly disruptive life events in an organization with a high supervisor support climate do experience the benefits of on-the-job training on their work ability. This finding highlights the importance of a supervisor support climate to experience the benefits of on-the-job training. Based on the results of this study we confirm that the use of on-the-job training is indeed important for work ability, but when individuals face disruptive life events and the use of on-the-job training is not combined with a supervisor support climate it does not appear to have any benefit for employees. This is in line with the proposition of Van Veldhoven, Van den Broeck, Daniels, Bakker, Tavares and Ogbonnaya (2020) that job resources are not universally effective and their effectiveness is increased when the right organizational resources are available (Molina & O'Shea). Moreover, this could indicate that the use of on-the-job training can act as a demand, rather than a resource when disruptive life events occur and that a supervisor support climate could counterbalance this demand. Previous studies also found that high-performance work practices such as on-the-job training can lead to an increase in workload (Jensen, Patel & Messersmith, 2013; Kroon, Van de Voorde & Van Veldhoven, 2009) and should therefore not be seen purely as a job resource.

Practical implications

This study has several important implications for managers. First, this study shows that in order to maintain and enhance work ability it is important to focus on job demands as well as home demands, as employees who are facing disruptive events in the private sphere appear to have a lower work ability. Furthermore, this study shows that while on-the-job training is usually beneficial for work ability, it may lose its functionality for employees who are facing disruptive life events in the private sphere in a low supervisor support climate. It is therefore important for (healthcare) organizations to invest in a supervisor climate. Such a climate can be created by ensuring that work procedures are evaluated as fair, by asking subordinates how they can be assisted, and by displaying personal attention (Maertz, Griffeth, Campbell & Allen, 2007). Additional training may be necessary to equip supervisors with these skills. Moreover, work ability appears to be especially relevant in the healthcare sector compared to other sectors as the aging of the population is a double-edged sword for the healthcare industry. On the one hand, fewer employees are available to meet the demands of the healthcare sector as people often leave

the profession before the official retirement age and there are not enough young employees available to replace them (Hasselhorn, Tackenberg, Müller & group, 2003). On the other hand, the demand for healthcare is increasing as people live longer and often face more health complaints at later ages (Simoens, Villeneuve & Hurst, 2005). This results in an expected workforce shortage of 12.9 million people in the healthcare industry by 2035 (Campbell et al., 2013). As work ability is an important predictor of sickness absenteeism, turnover intentions, and early retirement (Camerino et al., 2006; Sell, 2009; von Bonsdorff, Seitsamo, Ilmarinen, von Bonsdorff & Taina, 2012), we urge managers in the healthcare sector to pay special attention to the work ability of their employees.

Limitations and directions for future research

This study has several limitations. First, as all variables in this study were self-reported and measured at the same time common method variance may have occurred which may have inflated our results (Podsakoff, MacKenzie, Lee & Podsakoff, 2003). In future research, it would be advisable to use data from multiple or more objective sources. Furthermore, common method bias could be reduced in future studies by separating the measurement of the independent and dependent variables over time in a longitudinal design. As outcomes related to successful aging at work, such as work ability, unfold over time (Zacher, 2015a) a longitudinal design would also help to provide more insight into how work ability develops over time after experiencing disruptive private life events (Zacher, Kooij & Beier, 2018).

Second, this study was conducted in the healthcare sector in The Netherlands, thereby limiting the generalizability of our findings to other sectors and countries. Although we believe healthcare is an important sector to study this relationship in, as the need for the extension for working lives is more pressing here compared to other sectors (Campbell et al., 2013), we recommend future studies to replicate these findings in other sectors and countries.

Third, in this study we only examined the direct effect of disruptive private life events on work ability. In future studies it would be interesting to add mediators to the model to get more insight into the process through which disruptive private life events influence work ability. In this study, we assumed that disruptive private life events would deplete personal resources (Akkermans et al., 2018) and this would lead to decreases in work ability based on the JD-R model. This mediation path or more biological processes should be addressed in future studies.

Fourth, in this study we examined the moderation effects of job and organizational resources on the relation between disruptive private life events and work ability, without looking at other types of moderators such as home and personal resources. These resources might be better matched with the stressor and therefore have more favorable effects compared to work and organizational resources (De Jonge & Dormann, 2006; Van der Doef & Maes, 1999).

CHAPTER 7

Discussion

7.1 Introduction

The aim of this dissertation was to examine how organizations can enhance the ability, motivation, and opportunity to continue working of older employees and employees who face major life events through Human Resource Management (i.e. job characteristics and HR practices). More specifically, I examined the influence of job characteristics and HR practices on the ability, motivation, and opportunity to continue working amongst older employees and employees who faced major life events. Five key issues were formulated to accomplish this aim, namely (1) integrate knowledge from different disciplines on the extension of working lives (i.e. work ability from occupational health psychology, motivation to continue working from work and organizational psychology, and employability from career management), (2) overcome methodological issues in studies on the extension of working lives, (3) examine the impact of major life events on outcomes related to the extension of working lives, (4) examine the impact of job characteristics on outcomes related to the extension of working lives, and (5) examine the impact of age-related bundles of HR practices on outcomes related to the extension of working lives. In this discussion chapter, the main results relating to each of these key issues and their theoretical contributions are discussed. Next, implications for practice are addressed, followed by the strengths and limitations of this dissertation and an agenda for future research. A summary of all these different aspects can be found in Table 7.1. Finally, the overall conclusion will be presented.

7.2 Main results and theoretical contributions

Key issue 1: integrating knowledge from different disciplines on the extension of working lives

Summary of the main findings

The extension of working lives is studied from a variety of disciplines (i.e. occupational health psychology, work and organizational psychology, the career management literature). As these disciplines are not well integrated, knowledge on the extension of working lives is dispersed. Therefore, the first contribution of this dissertation was to integrate knowledge from different disciplines on the extension of working lives. More specifically, I used the AMO framework (Appelbaum, Bailey, Berg, & Kalleberg, 2000) to combine outcomes of three disciplines (i.e. work ability from occupational health psychology, motivation to continue

working from work and organizational psychology, and employability from career management) to gain more insight into the extension of working lives. In Chapters 2 and 5 I used each of these three outcomes. In Chapters 3 and 4, I focused on the ability and motivation to continue working. Finally, in Chapter 6 I only focused on the ability to continue working.

The systematic review reported in Chapter 2 revealed that existing research on the relationship between Human Resource Management and the extension of working lives mostly focuses on work ability as an outcome, whereas research on the motivation to continue working and employability (i.e. the opportunity to continue working) is very limited. Furthermore, using these three outcomes from different disciplines revealed that there are several differences in how HR practices, job resources, and job demands relate to these three outcomes. For example, the results of Chapter 4 revealed that physical demands hinder the ability to continue working, whereas they promote the motivation to work. The systematic review reported in Chapter 2 revealed that developmental practices had a positive effect on employability (i.e. the opportunity to continue working) and motivation, but inconclusive evidence was found with regard to the relation between developmental practices and work ability. Additionally, the results of Chapter 3 revealed that developmental practices have a positive effect on work ability, but do not affect the motivation to continue working.

Theoretical implications

In this dissertation, I used the AMO framework (Appelbaum et al., 2000) to combine outcomes from different disciplines. However, it is important to acknowledge that the AMO framework (Appelbaum et al., 2000) is generally applied to categorize indicators of (work) performance, such as HR practices (i.e. independent variables) (see for example Jiang, Lepak, Hu, & Baer, 2012) and not to categorize indicators of more distal outcomes (i.e. dependent variables), such as the extension of working lives. However, as this bundling allowed me to integrate different research streams and each of these three different indicators are closely related to the actual retirement age (see for example Schermuly, Deller, & Büsch, 2014; Sell, 2009; Solem et al., 2016) I argue that the AMO framework (Appelbaum et al., 2000) was an appropriate model to use. This argument was strengthened by previous work that used the same framework to bundle the ability, motivation, and opportunity to continue working for similar distal outcomes such as sustainable employability (Le Blanc, Van der Heijden, & Van Vuuren,

2017; van der Heijden, 2012; Ybema et al., 2014). Therefore, I argue that the AMO framework can also be applied to (distal) outcomes and not just to (proximal) independent variables.

Key issue 2: overcoming methodological issues in studies on the extension of working lives

Summary of the main findings

As illustrated by the findings of the systematic review presented in Chapter 2 there are a number of methodological issues with regard to studies examining the extension of working lives; the majority of studies are cross-sectional and take a variable-centered approach. However, as aging is a process that develops over time (Wang et al., 2017) and aging trajectories differ (Morack, Ram, Fauth, & Gerstorf, 2013) longitudinal and person-centered approaches are more appropriate to study the ability, motivation, and opportunity to continue working. To address this second key issue I conducted two empirical studies in which I made use of the STREAM data (see Chapters 3 and 4). This data contained four waves with time lags of one year, which allowed us to give more insight into how the outcomes related to the extension of working lives change over time. Moreover, due to the large number of employees included in this database, we could distinguish different subgroups of older employees based on their trajectories of the ability and motivation to work using a person-centered approach. Additionally, in Chapter 5 we asked older employees to make drawings of how their ability, motivation, and opportunity to continue working developed over the course of their career to get more insight into developments over time.

First, the results of Chapter 3 revealed that amongst older employees on average the ability to continue working slightly decreases over time whereas the motivation to continue working slightly increases over time. Second, the drawings made in Chapter 5 revealed that in general the ability, motivation, and opportunity to continue working decrease slightly over the course of the career but that the largest drops in these outcomes are caused by career shocks (i.e. disruptive major life events), rather than age. Individual differences in these patterns were thus largely caused by career shocks.

Third, although the majority of research uses the variable-centered approach assuming that trajectories of the ability, motivation, and opportunity to continue working are the same for older workers, we found with the use of a person-centered approach that multiple subgroups can be distinguished with regard to how the ability and motivation to continue working of older employees develop over time. The majority of employees showed minor or moderate changes

over time. Contrary to the findings of Chapter 3 (in which a variable-centered approach was used) the majority of employees showed a slight increase in work ability over time, whereas one small subgroup showed a major increase in work ability over time, and one small subgroup showed a major decrease in work ability over time. Similarly, with regard to the motivation to continue working, the majority of employees shows a slight decrease over time, about a quarter of the older employees remained stable over time, and a small group showed a fast increase over time, whereas a variable-centered approach reveals a slight increase over time (see results Chapter 3).

Theoretical implications

By using longitudinal and person-centered approaches the findings of this dissertation underline that the ability, motivation, and opportunity to continue working change over time and that these trajectories can differ amongst individuals. Furthermore, these findings show that disruptive major life events are an important factor that can explain why trajectories of work ability and motivation to work differ. Therefore, longitudinal and person-centered methods are more suitable for understanding the complex process of aging at work (Wang et al., 2017). However, we do not find differences in the way job demands, job resources, and HR practices on the one hand relate to the ability, motivation, and opportunity to continue working on the other hand. Differences that were found with regard to the way HR practices relate to these outcomes in the systematic review presented in Chapter 2 and the findings of the longitudinal study presented in Chapter 3 appear to be between intervention studies versus longitudinal studies or cross-sectional studies. In intervention studies accommodative and maintenance practices appear to have a positive effect on work ability, whereas in cross-sectional and longitudinal studies mostly negative or non-significant effects are found. This could indicate that these practices are implemented in a more preventive and consistent manner in intervention studies than they are normally done in organizations or that publication bias has occurred in intervention studies.

Key issue 3: examining the impact of major life events on outcomes related to the extension of working lives

Summary of the main findings

Even though previous studies indicate that major life events could be an important factor shaping the ability, motivation, and opportunity to continue working (Akkermans, Seibert, & Mol, 2018; Bakker, Du, & Derks, 2018; Ten Brummelhuis & Bakker, 2012), studies examining

the impact of life events on work outcomes are rare (Bakker et al., 2018; Hakanen & Bakker, 2017). Therefore, this dissertation aimed to study how major life events relate to the ability, motivation, and opportunity to continue working. To address this third key issue we conducted a qualitative interview study and a cross-sectional multilevel study.

First, the qualitative study presented in Chapter 5 revealed that the biggest fluctuations in the ability, motivation, and opportunity to continue working are caused by career shocks. Career shocks are major life events that are extraordinary, unpredictable and/or uncontrollable, and disruptive (Akkermans et al., 2018). This study revealed that major life events turn into career shocks when they lead to changes in job demands and job and/or personal resources and these changes in turn trigger changes in person-job fit. These changes in person-job fit, in turn, lead to changes in the ability, motivation, and opportunity to continue working.

Second, in the empirical study presented in Chapter 6, we focussed specifically on private life events. Moreover, our findings revealed that home demands caused by disruptive private life events had a negative effect on work ability.

Theoretical contributions

The findings of this study support the notion posed by the work-home resources model (Ten Brummelhuis & Bakker, 2012) that home demands, similar to work demands, can be predictors of work outcomes. Previous research highlights the need to consider the work context when examining work outcomes. Based on these findings it appears important to consider the individual context when examining work outcomes related to the extension of working lives as well. In the individual context, major life events are particularly important factors to consider because they can be disruptive in nature and trigger career deliberation (Akkermans et al., 2018). Moreover, the findings suggest that the work-home resources model (Ten Brummelhuis & Bakker, 2012), as well as the person-environment fit theory (Edwards, Cable, Williamson, Lambert, & Shipp, 2006), provide appropriate frameworks to examine the relationship between major life events.

Key issue 4: examining the impact of job characteristics on outcomes related to the extension of working lives

Summary of the main findings

Truxillo, Cadiz, Rineer, Zaniboni, and Fraccaroli (2012) suggest that job characteristics play an important role in the facilitation of extended working lives. However, as research in the field of the extension of working lives is scattered (see key issue 1) and studies often take a cross-sectional approach (see key issue 2) we know little of how job characteristics influence the ability, motivation, opportunity to continue working over time. To address this fourth key issue I conducted a systematic review (Chapter 2) and three empirical studies (Chapters 4, 5, and 6).

These studies combined suggest that job resources (especially autonomy and social support) are important factors in maintaining and increasing the ability, motivation, and opportunity to continue working and that these job resources might be particularly important for employees who face major life events. Furthermore, our findings suggest that, overall, job demands are negatively related to the ability, motivation, and opportunity to continue working. Physical job demands are especially negatively related to work ability, whereas emotional demands are especially negatively related to the motivation to continue working. However, some job demands (i.e. mental demands and challenging work) are beneficial for the ability and motivation to continue working.

Theoretical contributions

Our findings generally confirm the proposition of the JD-R model (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) that job demands (i.e. emotional and physical demands) have a negative effect and job resources have a positive effect on work outcomes. However, challenging work and mental demands were found to have positive effects on the ability and motivation to continue working, and physical demands appeared to have a positive effect on the motivation to work. LePine, Podsakoff, and LePine (2005) distinguish between challenging and hindrance demands and found that challenging demands generally have a positive effect on work-related outcomes, whereas hindrance demands generally have negative effects on work outcomes. In the same line of reasoning Schaufeli and Taris (2014) classify challenging demands as job resources rather than job demands. More specifically, Van den Broeck, De Cuyper, De Witte, and Vansteenkiste (2010) classify mental job demands as challenges. Therefore, I propose that mental job demands and challenging work can be seen as challenging demands that have a positive effect on the ability, motivation, and opportunity to continue working. Mental demands might be especially important as challenging demands for

older workers as our crystallized intelligence improves as we age (Ilmarinen, 2001; Kanfer & Ackerman, 2004; Schaie, 1996).

Key issue 5: examining the impact of age-related bundles of HR practices on outcomes related to the extension of working lives

Summary of the main findings

HR practices are largely overlooked in current research on the extension of working lives (Armstrong-Stassen & Ursel, 2009), although they are assumed to be an important tool through which organizations can influence outcomes related to the extension of working lives (Kooij, Jansen, Dikkers, & de Lange, 2014). To fill this research gap I conducted a systematic review and three empirical studies (of which two are quantitative and one is qualitative).

The findings of the systematic review presented in Chapter 2 showed positive effects of developmental practices on employability (i.e. the opportunity to continue working). However, evidence that developmental practices have a positive influence on work ability was inconclusive and insufficient evidence was found to test the relationship between developmental practices and the motivation to continue working. However, the results in Chapters 3 and 6 confirm that developmental practices have a positive effect on the ability to continue working. Additionally, the results of Chapter 5 and Chapter 6 reveal that the use of developmental practices might not be useful for employees who face major private life events in a climate that is characterized by low levels of support. On the other hand, the use of developmental practices appears to be particularly effective for employees who face major life events at work. Furthermore, the results of the systematic review presented in Chapter 2 revealed that maintenance practices have a positive effect on work ability. There were not enough studies available to draw any conclusions on the effect of maintenance practices on the motivation and opportunity to continue working. However, the results of the empirical study presented in Chapter 3 suggest that maintenance practices have a negative effect on both the starting levels as well as the development of the ability and motivation to continue working.

With regard to utilization practices, the results of the systematic review reported in Chapter 2 revealed inconclusive effects in relation to work ability, and insufficient evidence with regard to the relationship between utilization practices and the motivation to continue working and employability (i.e. the opportunity to continue working). The results of the empirical study presented in Chapter 3 suggest that utilization practices do not affect the ability and motivation

to continue working. However, the results of the qualitative study reported in Chapter 5 revealed that utilization practices appear to be beneficial for maintaining and increasing the ability, motivation, and opportunity to continue working for employees who face major life events at work.

Finally, the results of the systematic review reported in Chapter 2 revealed that accommodative practices have a positive effect on work ability, but insufficient evidence was found to test the relationship between accommodative practices and the motivation to continue working and employability (i.e. the opportunity to continue working). However, the findings of the empirical paper presented in Chapter 3 revealed that accommodative practices have a negative influence on the starting levels of work ability and the motivation to continue working. On the other hand, the findings of the qualitative study presented in Chapter 5 suggest that accommodative practices can be beneficial for maintaining and increasing the ability, motivation, and opportunity to continue working of employees who face major life events in the private sphere.

Theoretical contributions

Traditionally, employee-centered HRM research (Peccei & Van De Voorde, 2019) focusses on high commitment and high performance work practices (Paauwe & Boselie, 2005). These sets of HR practices are expected to positively influence the commitment and work performance of employees. However, these practices can also lead to more work pressure and therefore increase the job demands of employees (see for example Jensen, Patel, & Messersmith, 2013; Kroon, Van de Voorde, & Van Veldhoven, 2009), which can go at the expense of (health-related) employee well-being (Van De Voorde, Paauwe, & Van Veldhoven, 2012). In this dissertation, I broaden the range of HR practices by not only focussing on development and utilization HR practices (which can be classified as high performance work practices) but also including accommodative and maintenance HR practices which are less focused on improving work performance and more on the maintenance of (health-related) well-being. By adding accommodative and maintenance practices I can conceptualize HR practices more as job resources that help people with their job demands.

However, our results imply that accommodative and maintenance practices are not always well implemented. In the longitudinal study that we presented in Chapter 3 the low correlations over time suggest that these practices were implemented in an ad hoc manner,

thereby compromising their promising potential. In the systematic review presented in Chapter 2 the majority of studies focussing on the relationship between accommodative or maintenance practices and work ability found positive results. However, these positive results were mainly found in intervention studies in which these practices were offered in a more preventive manner. This indicates that the implementation of maintenance and accommodative practices is problematic and can be improved or that publication bias may have occurred. Furthermore, it could also indicate that accommodative and maintenance practices are only effective when they are offered to a specific group of employees who face threats to the maintenance of their ability, maintenance, and opportunity to continue working and that they are not effective or possible even have negative effects for people who do not face threats to the maintenance of their ability, motivation, and opportunity to continue working. This would imply that HR practitioners and managers should consider more carefully which employees will receive what HR practices because if HR practices are provided to employees who do not need them this might have unintended negative effects.

7.3 Practical implications

This dissertation has several implications for practice. These are discussed below for each key issue.

Key issue 1: integrating knowledge from different disciplines on the extension of working lives

Organizations should be aware that different actions might be needed to stimulate the ability, motivation, or opportunity to continue working. Therefore, organizations that want to extend the working lives of their employees should start by assessing the level of the ability, motivation, and opportunity to work their employees have and adjust their actions accordingly. Alternatively individuals who want to extend their working lives can assess themselves in which of these three areas they face the biggest threats.

Key issue 2: overcoming methodological issues in studies on the extension of working lives

Organizations should be aware that aging trajectories differ and that job characteristics and HR practices need to be adapted based on the trajectory each employee follows. Therefore, organizations and employees that want to extend the working lives of their employees should not only assess the level of the ability, motivation, and opportunity to work their employees have but also the trajectories that their employees follow on these outcomes. Actions to improve the

extension of working lives should be targeted on the outcome on which employees follow unfavorable trajectories. For example, employees who follow unfavorable trajectories with regard to the motivation to continue working might need different interventions than employees who follow unfavorable trajectories with regard to the ability or opportunity to continue working.

Key issue 3: examining the impact of major life events on outcomes related to the extension of working lives

Organizations should be aware of major life events that employees within their organizations face as these can limit their ability, motivation, and opportunity to continue working severely. In these periods, employees require more attention and individualized action plans. Even though developmental practices are generally effective for facilitating the extension of working lives, they are not effective for employees who face disruptive major life events in the private sphere who work in an organization with low levels of supervisor support climate. In these cases, high levels of social support and accommodative practices appear to be more beneficial. Moreover, when individuals face major life events at work, developmental and utilization practices appear to be most beneficial in maintaining or improving the ability, motivation, and opportunity to continue working. Training may be necessary to make supervisors aware of the function of these different HR bundles and to explain which HR practices are most appropriate in which situations. Furthermore, employees that experience major life events could engage in job crafting or initiate i-deals to adjust their job in such a way that it fits better with their current life conditions.

Key issue 4: examining the impact of job characteristics on outcomes related to the extension of working lives

Organizations should make sure that employees have sufficient job resources and challenging demands, whereas hindering demands should be minimized to ensure that the working lives of employees can be extended. Employees who want to extend their working lives can engage in job crafting to gain additional job resources and challenging demands and minimize hindering job demands (Tims, Bakker, & Derks, 2013). With regard to job resources, autonomy and support from supervisors and colleagues are especially important. First, organizations can stimulate autonomy by introducing self-managing teams and high involvement HR practices to stimulate employee empowerment (Parker, Williams, & Turner, 2006; Rehman,

Ahmad, Allen, Raziq, & Riaz, 2019). Second, organizations can stimulate perceptions of social support by increasing organizational identification (Avanzi et al., 2018). Furthermore, Shapiro and Galowitz (2016) suggest introducing peer support programs to improve support amongst colleagues. Moreover, supervisors can enhance perceptions of supervisor support by showing personal consideration, asking how they can assist employees in doing their job better and making sure that work procedures are perceived as fair (Maertz, Griffeth, Campbell, & Allen, 2007).

With regard to challenging job demands, mental demands appear to be important to stimulate the ability and motivation to continue working. Previous research has shown that mental demands could be increased by adding task enrichment to monotonous jobs (Bosma et al., 2003). Furthermore, challenging work and physical demands appear to be beneficial for the motivation to continue working.

With regard to hindering job demands, physical demands need to be reduced to improve the ability to continue working. This can be done by using lifting strategies and by providing education to employees on how they should change their work behavior (van der Molen, Sluiter, Hulshof, Vink, & Frings-Dresen, 2005). Furthermore, managers can create a health climate that promotes healthy work behavior and the use of lifting strategies by discussing health-related issues and providing practical support (Schulz, Zacher, & Lippke, 2017). Moreover, physical exercise appears to be important to counteract the negative consequences of physical work demands on work ability (Ilmarinen, 2001). Several intervention studies demonstrate that physical exercise interventions in the workplace are an effective way to increase physical exercise of employees and promote work ability (Dellve et al., 2011; Jakobsen et al., 2015; Kuoppala, Lamminpää, & Husman, 2008). Emotional demands, on the other hand, appear to harm the motivation to continue working. Organizations can reduce the negative effects of emotional demands by training the emotional competences of their employees (Giardini & Frese, 2006).

Key issue 5: examining the impact of age-related bundles of HR practices on outcomes related to the extension of working lives

Organizations should provide employees of all ages with sufficient developmental practices. Despite the importance of developmental practices for the extension of working lives, previous

research has shown that older employees usually have less access to developmental practices compared to their younger counterparts (Canduela et al., 2012; Karpinska, Henkens, Schippers, & Wang, 2015; Lazazzara, Karpinska, & Henkens, 2013). Therefore, I recommend organizations to offer developmental practices to all their employees, regardless of their age. Furthermore, employees who face major life events in private life should be offered accommodative practices whereas employees who face major life events at work should be offered additional developmental and utilization practices.

7.4 Strengths and limitations

This dissertation has several strengths and limitations. Strengths of this dissertation are the integration of different research streams, longitudinal designs in the majority of studies, and a mix of different research methods (i.e. a literature review, various quantitative methods [i.e. latent growth curve modeling, growth mixture modeling, and multilevel modeling], and a qualitative study). Despite these strengths, several limitations should be noted. First, as the majority of studies presented in this dissertation are based on survey data common method bias may have occurred (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). In Chapters 3 and 4 this risk was reduced by the use of longitudinal data, but in future studies this risk may be reduced further by combining survey data with more objective data sources such as absenteeism levels or by using different raters (i.e. supervisors or colleagues). Furthermore, the effect sizes reported in this dissertation are rather low, especially in Chapters 3 and 4. This indicates that HR practices and job design might not be the most important factors related to the ability, motivation, and opportunity to continue working. Wang and Shultz (2010) suggest that personal factors (e.g. age, health, and education) and societal norms also play an important role in relation to the ability, motivation, and opportunity to continue working. To illustrate, age, health, and education are important indicators of the retirement age (see for example Adams & Rau, 2004; Shultz & Wang, 2007; Von Bonsdorff, Shultz, Leskinen, & Tansky, 2009) and Settersten Jr and Hagestad (1996) found that societal norms put pressure on individual retirement plans. In this dissertation, I have solely focused on actions that employers can take such as offering HR practices or changing the job design. However, Kanfer, Beier, and Ackerman (2013) suggest that personal factors and societal norms might outperform work-related factors such as HR practices and job design in the prediction of the extension of working lives. Even though I did not focus on actions that employees or governments can take in maintaining and improving levels of the ability,

motivation, and opportunity to continue working I do not mean to imply that these parties cannot play an important role in this process. Finally, the opportunity to continue working could not be examined in two of the studies reported in this dissertation as I made use of a secondary dataset in which the opportunity component was not measured in line with our conceptualization.

7.5 Future research

Based on the findings of the studies presented in this dissertation and the five key issues that were raised I will make five suggestions for future research. First, to improve our understanding of how employers can extend the working lives of their employees we need to test how the ability, motivation, and opportunity to continue working relate to each other. Since high motivation levels can likely compensate for lower work ability, it is important to understand whether these outcomes can compensate for each other. On the other hand, it is also plausible that when employability (i.e. the opportunity to continue working) is very low it is impossible to extend the working lives of employees regardless of the ability and motivation levels.

Second, we can improve our insight into how organizations can extend the working lives of their employees by using more appropriate research methods. I would specifically recommend the use of more longitudinal studies, person-centered analyses, and intervention studies. The results of the systematic review presented in Chapter 2 revealed that 59% of the studies examining the relationship between Human Resource Management and the ability, motivation, and opportunity to continue working are based on cross-sectional studies. However, as demonstrated in Chapter 3, 4, and 5, the ability, motivation, and opportunity fluctuate over time. In order to get more insight in the ability, motivation, and opportunity to continue working longitudinal studies are necessary as they can capture these changes over time. Therefore, I urge researchers to employ more longitudinal studies with regards to the extension of working lives to get more insight in the nature as well as the direction of cross-lagged relations over time (De Lange, Taris, Kompier, Houtman, & Bongers, 2003). Furthermore, the majority of studies on the extension of working lives takes a variable-centered approach. Although this approach is very suitable for getting a general picture of how variables relate to one another and for making general recommendations, they ignore the differences between individuals. As we know from previous research that individual differences increase with age, person-centered approaches would allow us to make much more accurate recommendations for practice. Moreover, to make accurate inferences about the directions of relations between Human Resource Management and

the ability, motivation, and opportunity to continue working intervention studies are needed. Age-appropriate HR practices currently appear to be offered as ad-hoc curative measures, rather than as consistent preventive measures. Intervention studies in which HR practices are implemented in a consistent preventive manner will provide a better picture of the degree to which these types of practices are effective in stimulating the ability, motivation, and opportunity to continue working.

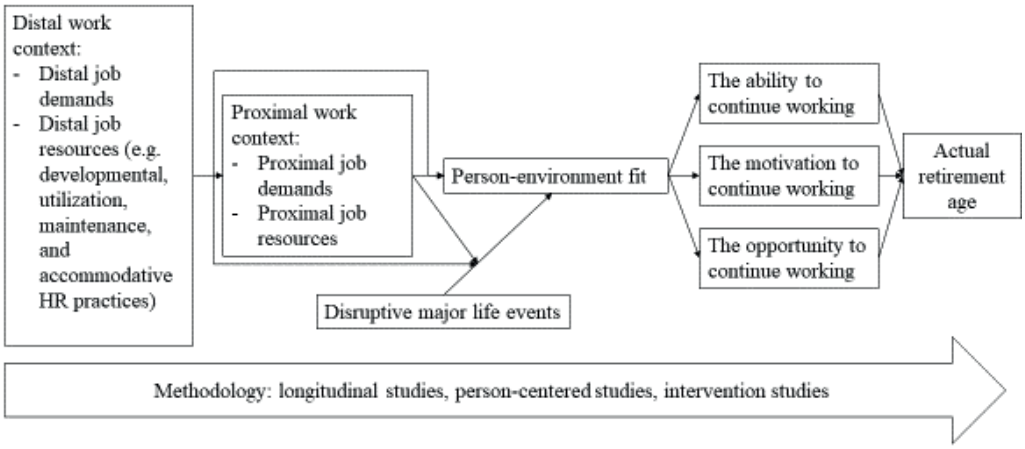
Third, we need to examine the mechanisms through which major life events influence the ability, motivation, and opportunity to continue working. The results of the qualitative study reported in Chapter 5 show that major life events could cause changes in demands and resources, which can lead to changes in the ability, motivation, and opportunity to continue working through changes in person-job fit. We need to examine this mechanism in quantitative research to improve the generalizability of these findings.

Fourth, in this dissertation, I classified job characteristics into job demands and job resources. However, Van Veldhoven and Peccei (2015) suggest that this classification is still too broad. They advise to break down job demands and job resources further by distinguishing between components that have an immediate impact on the work activities of the employee (i.e. the proximal work context) and components that are part of the distal context. The proximal work context consists of all components of the job that 'are necessary for and/or a direct part of the work activities' (Van Veldhoven & Peccei, 2015, p. 4). These components can be physical (e.g. equipment or machines), social (e.g. clients or co-employees), or intangible (e.g. feedback or orders) in nature. Examples of proximal job demands are physical, mental, and emotional job demands and examples of proximal resources are autonomy, task variety, instrumental support, and feedback. The distal context refers to the wider organizational and societal environment in which the work is conducted (Van Veldhoven & Peccei, 2015). Examples of distal factors that influence job demands are organizational culture and climate towards performance, service and business goals and individual performance agreements made during yearly performance appraisals and examples of distal job resources are job security and HR practices. In line with Parker, Van den Broeck, and Holman (2017) Van Veldhoven and Peccei suggest that job demands and job resources in the proximal context have a direct effect on employee outcomes, whereas job demands and job resources in the wider context only have an indirect effect on employee outcomes through their influence on the proximal context. This distinction and

mechanism could be examined further in future research.

Finally, the mechanism through which HR practices influence the ability, motivation, and opportunity to continue working could be examined further. In line with the suggestion above the influence of HR practices as distal job resources through proximal job resources and job demands on the ability, motivation, and opportunity to continue working could be examined. A visualization of these ideas for future research can be found in Figure 7.1.

Figure 7.1 A model for future research



7.5 Conclusion

Overall, this thesis aimed to integrate the different research streams that investigate the extension of working lives and to give more clarity on what organizations can do to promote the ability, motivation, and opportunity to continue working of older employees and employees who face major life events. The results of this dissertation suggest that developmental practices, job resources, and challenging demands are important drivers of the ability, motivation, and opportunity to continue working. Job resources and HR practices appear to be particularly important to maintain and increase the ability, motivation, and opportunity to continue working when employees face disruptive major life events. More specifically, accommodative practices are important in response to major life events in the private sphere, whereas developmental and utilization practices are important in response to major life events at work. In all cases, support from supervisors and colleagues is very important to recover from major life events.

Table 7.1 Overview of the dissertation

Key issue	Main findings	Theoretical implications	Practical implications	Avenues for future research
Integrate knowledge from different disciplines on the extension of working lives	Previous research mainly focusses on work ability. Furthermore, there are several differences in the way job characteristics and HR practices relate to these three outcomes.	The ability, motivation, and opportunity to continue working are theoretically different from one another. Furthermore, this dissertation shows that the AMO framework can also be applied to distal outcomes and is particularly useful for combining different research streams with regard to the extension of working lives.	Organizations should be aware that different actions might be needed to stimulate the ability, motivation, or opportunity to continue working.	We need to examine how the ability, motivation, and opportunity to continue working relate to the actual retirement age and how these indicators relate to one another.
Overcome methodological issues in studies on the extension of working lives	The ability and motivation to continue working develop differently over time and different subgroups can be distinguished in these development trajectories.	Longitudinal and person-centered approaches help us to better understand the complex process of aging at work.	Organizations should be aware that aging trajectories differ and that job characteristics and HR practices need to be adapted based on the trajectory each employee follows.	We need more longitudinal studies that are examined with person-centered approaches. Furthermore, we need more intervention studies.
Examine the impact of major life events on outcomes related to the extension of working lives	Major life events influence the ability, motivation, and opportunity to continue working when they are disruptive and lead to changes in person-job fit.	Our results highlight the need to consider the personal context (and major life events in particular) as well as the work context when examining work outcomes. The work-home resources model and person-environment fit theory appear to be appropriate frameworks to study this relationship.	Organizations should provide employees who face major life events with extra assistance to minimize the negative effects of life events or reinforce positive effects.	We need to examine the mechanisms through which life events influence the ability, motivation, and opportunity to continue working in a quantitative study.
Examine the impact of job characteristics on	The ability, motivation, and opportunity to continue working are positively influenced by job	Our findings largely support the propositions of the JD-R model, however, it is important to make a	Organizations should make sure that employees have sufficient job resources and	We need to distinguish between distal and proximal job demands and job resources when

outcomes related to the extension of working lives	resources. Furthermore, they are generally negatively influenced by job demands, but mental demands and challenging work have a positive effect.	distinction between hindering and challenging demands.	challenging demands, whereas hindering demands should be minimized to ensure that the working lives of employees can be extended.	examining the influence of job characteristics on the ability, motivation, and opportunity to continue working.
Examine the impact of age-related bundles of HR practices on outcomes related to the extension of working lives	Developmental practices have a positive influence on all three outcomes. Accommodative practices and maintenance practices have a negative effect on work ability and the motivation to (continue) work(ing). However, accommodative practices do appear to be useful after experiencing major life events in the private sphere, whereas developmental practices and utilization practices appear to be useful after experiencing major life events at work.	I added accommodative and maintenance practices to the more commonly studied High Performance work practices. Furthermore, our results highlight that accommodative and maintenance practices are not well implemented.	Organizations should provide employees of all ages with sufficient developmental practices. Furthermore, employees who face major life events in private life should be offered accommodative practices whereas employees who face major life events at work should be offered additional developmental and utilization practices.	We need to examine the pathways through which HR practices influence the ability, motivation, and opportunity to continue working.

CHAPTER 8

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CHAPTER 9

Summary

Introduction

As set out in Chapter 1 organizations are challenged to extend the working lives of their employees due to demographic trends. In this dissertation, I propose that employees will extend their working lives if they have the ability, motivation, and opportunity to do so. An increasing number of studies focus on the extension of working lives, yet few empirical studies focus on the possible effects of Human Resource Management (i.e. job demands, job resources, and HR practices) and the role of major life events. To address this issue, I aim to contribute to the literature on the extension of working lives by examining the effectiveness of job demands, job resources, and HR practices in facilitating the ability, motivation, and opportunity to continue working for older workers or workers who face major life events. The main research question of this dissertation is:

To what extent do Human Resource Management, major life events, and their interactions influence the maintenance of the ability, motivation, and opportunity to continue working?

Five key issues were formulated to accomplish this aim, namely: (1) integrate knowledge from different disciplines on the extension of working lives (i.e. occupational health psychology, organizational psychology, and career management), (2) overcome methodological issues in studies on the extension of working lives, (3) examine the impact of major life events on outcomes related to the extension of working lives, (4) examine the impact of job characteristics on outcomes related to the extension of working lives, and (5) examine the impact of age-related bundles of HR practices on outcomes related to the extension of working lives.

Overview of the main results for each of the five key issues

1. Integrate knowledge from different disciplines on the extension of working lives

The extension of working lives is examined from different disciplines and perspectives (i.e. occupational health psychology, work and organizational psychology, sociology, and the career management literature). These disciplines are not well integrated. To address this issue I aimed to take an overarching perspective by combining outcomes of different research streams using the Ability-Motivation-Opportunity framework. More specifically, I combined outcomes of three of the aforementioned disciplines (i.e. work ability from occupational health psychology,

motivation to continue working from work and organizational psychology, and employability from career management) to gain more insight into the extension of working lives and refer to these outcomes as the ability, motivation, and opportunity to continue working. In Chapters 2 and 5, we used all three of these outcomes. In Chapters 3 and 4, we focused on the ability and motivation to continue working. Finally, in Chapter 6 we only focused on the ability to continue working.

The systematic review reported in Chapter 2 revealed that research on the relationship between Human Resource Management and the extension of working lives mostly focuses on work ability as an outcome, whereas research on the motivation and opportunity to continue working is very limited. Furthermore, the results of the remaining chapters revealed that the ability and motivation to continue working develop differently over time (i.e. work ability generally decreases over time, whereas the preferred retirement age generally increases over time) and that there are several differences in how job resources, job demands, and HR practices relate to these three outcomes. For example, work times were found to have a negative effect on work ability, but the effect of work times on motivation was inconclusive. Moreover, maintenance practices were found to have a negative effect on work ability, but do not affect the motivation to continue working. Furthermore, physical demands were found to hinder the ability to continue working, whereas they promote the motivation to work.

2. Overcome methodological issues in studies on the extension of working lives

The majority of the studies that examine the ability, motivation, and opportunity to continue working are based on cross-sectional studies and take a variable-centered approach. However, aging at work implies a temporal dimension that cannot be captured by cross-sectional studies. Furthermore, we know that the differences between individuals become larger when they age. Therefore, longitudinal and person-centered studies are more appropriate to examine the extension of working lives. To address this issue I have examined how outcomes related to the extension of working lives develop over time and whether different subgroups could be distinguished with regard to this development over time. More specifically, I made use of longitudinal studies (Chapter 3, 4, and 5) and used a person-centered approach (Chapter 4).

The results of Chapter 3 revealed that amongst older workers on average the ability to continue working slightly decreases over time whereas the motivation to continue working slightly increases over time. The results of Chapter 4 revealed that multiple subgroups can be

distinguished with regard to how the ability and motivation to work of older workers develop over time. With regard to work ability, the majority of workers showed a slight increase over time, whereas one small subgroup showed a major increase over time, and one small subgroup showed a major decrease over time. With regard to the motivation to work, the majority of workers showed a slight decrease over time, about a quarter of the older workers remained stable over time, and a small group showed a fast increase over time. Finally, the results of Chapter 5 revealed that the ability, motivation, and opportunity to continue working decrease slightly over the course of the career but that the largest drops in these outcomes are caused by major life events, rather than age.

3. *Examine the impact of major life events on outcomes related to the extension of working lives*

During their working lives, employees will face several major life events. Previous studies suggest that these life events might play an important role in the development of the ability, motivation, and opportunity to continue working. However, studies that examine the impact of major life events on outcomes related to the extension of working lives are scarce. To address this issue I have examined how major life events related to the ability, motivation, and opportunity to continue working in a qualitative interview study and a cross-sectional multilevel study.

First, the qualitative study presented in Chapter 5 revealed that the biggest fluctuations in the ability, motivation, and opportunity to continue working are caused by major life events. This study revealed that when major life events lead to changes in job demands or in job and/or personal resources and these changes in turn trigger changes in the person-job fit that major life events influence the ability, motivation, and opportunity to continue working. Furthermore, in the empirical study presented in Chapter 6, we focussed specifically on private life events. Our findings revealed that home demands caused by disruptive private life events had a negative effect on work ability.

4. *Examine the impact of job characteristics on outcomes related to the extension of working lives*

To give guidelines to employers on how to extend the working lives of their employees it is important to create more insight into how job characteristics influence the ability, motivation, and opportunity to continue working. To date, studies that examine this relationship are scarce, results are scattered across a variety of disciplines that are not well integrated (see key issue 1),

and the studies that exist often make use of cross-sectional data and use variable-centered approaches (see key issue 2). To clarify this relationship I have examined how job demands and job resources influence the ability, motivation, and opportunity to continue working. More specifically, we conducted a systematic review (Chapter 2) and three empirical studies (Chapters 4, 5, and 6) to address this issue.

The results of Chapters 2, 4 and 5 combined suggest that job resources (especially autonomy and social support) are important factors in maintaining and increasing the ability, motivation, and opportunity to continue working and that these job resources might be particularly important for employees who face major life events. Furthermore, our findings suggest that, overall, job demands are negatively related to the ability, motivation, and opportunity to continue working. Physical job demands are especially negatively related to work ability, whereas emotional demands are especially negatively related to the motivation to continue working. However, some job demands (i.e. mental demands and challenging work) are beneficial for the ability and motivation to continue working.

5. *Examine the impact of age-related bundles of HR practices on outcomes related to the extension of working lives*

HR practices are assumed to be an important tool through which organizations can extend the working lives of their employees but studies that examine the relationship between HR practices and the ability, motivation, and opportunity to continue working are scarce. To address this key issue I have examined the relationship between development, maintenance, utilization, and accommodative HR practices and the ability, motivation, and opportunity to continue working. More specifically, we conducted a systematic review and three empirical studies (of which two are quantitative and one is qualitative).

First, the systematic review presented in Chapter 2 revealed that the majority of the research on the effectiveness of Human Resource Management on outcomes related to the extension of working lives is focused on job characteristics rather than to HR practices. Furthermore, this review revealed that maintenance and accommodative practices appear to have a positive effect on work ability, whereas developmental and utilization practices show mixed effects in relation to work ability. Moreover, developmental practices appear to have a positive effect on employability and the motivation to continue working. There are insufficient studies examining the relationship between utilization, maintenance, and accommodative practices and

employability (an indicator of the opportunity to continue working) as well as the motivation to continue working. Furthermore, there are insufficient studies examining the relationship between HR practices and age discrimination (an indicator of the opportunity to continue working) to draw any conclusions on the effectiveness of these practices.

Moreover, the empirical study presented in Chapter 3 revealed that developmental practices have a positive influence on work ability, whereas maintenance and accommodative practices have a negative influence. Furthermore, we found that accommodative and maintenance practices have a negative influence on the motivation to continue working. Furthermore, the results of the qualitative study presented in Chapter 5 suggest that accommodative practices are most useful to regain the ability, motivation, and opportunity to continue working after experiencing major life events in the private sphere, whereas developmental practices and utilization practices appear to be most useful for regaining the ability, motivation, and opportunity to continue working after experiencing major life events at work. Finally, the results of the empirical study presented in Chapter 6 confirm that developmental practices are important for the work ability of employees. However, they cannot buffer the negative effect of disruptive life events and the positive effect of developmental practices on work ability disappears when they are offered to employees who face disruptive life events in an organization where supervisor support climate is low.

Discussion and conclusion

In Chapter 7 the findings of this dissertation are summarized and the theoretical and practical implications are discussed. This dissertation demonstrates that in order to extend working lives organizations can facilitate employees through sufficient job resources and challenging job demands, whereas hindering job demands should be minimized. With regard to HR practices, developmental practices appear to be the best vehicle to stimulate the ability, motivation, and opportunity to continue working, especially when combined with high levels of supervisor support. Accommodative, maintenance, and utilization practices showed mixed effects in relation to the ability, motivation, and opportunity to continue working but they were mostly found to have a negative effect. This could indicate that these practices are implemented in an ad-hoc reactive manner, rather than in a consistent preventive manner. Furthermore, this could indicate that these practices might be more useful when offered in response to major life events, but more empirical studies are needed to create insight into these effects.

Theoretical implications

First, this dissertation demonstrates that the ability, motivation, and opportunity to continue working are theoretically different from one another and should all be studied to get a better understanding of how organizations can stimulate the extension of working of lives. Furthermore, this dissertation shows that the AMO framework can also be applied to distal outcomes and not just to proximal predictors. Second, longitudinal and person-centered approaches help us to better understand the complex process of aging at work. Moreover, our findings confirm that trajectories of work outcomes are in line with patterns that show growth, maintenance, recovery and, regulation of loss strategies Third, our results highlight the need to consider the personal context as well as the work context when examining work outcomes. The work-home resources model and person-environment fit theory appear to be appropriate frameworks to study this relationship. Fourth, our findings largely support the propositions of the JD-R model that job resources are beneficial for work outcomes related to the extension of working lives and that job demands hinder work outcomes related to the extension of working lives. However, it is important to make a distinction between hindering and challenging demands as challenging demands (e.g. mental demands and challenging work) as challenging demands appear to be beneficial for work outcomes related to the extension of working lives. Finally, we did not only focus on developmental and utilization practices (which can be seen as High Performance Work practices), but we also included accommodative and maintenance practices which are less focused on improving work performance and more on the maintenance of (health-related) well-being compared to High Performance work practices. By adding accommodative and maintenance practices we can conceptualize HR practices more as job resources that help people with their job demands. Furthermore, our results highlight that accommodative and maintenance practices are not well implemented. They appear to be implemented in an ad-hoc curative manner rather than in a consistent preventive manner, thereby limiting their potential beneficial effect.

Practical implications

This dissertation has several important implications for practice. First, the results of this dissertation show that organizations should be aware that different actions might be needed to stimulate the ability, motivation, or opportunity to continue working. Second, given the results of

this dissertation organizations should be aware that aging trajectories differ and that job characteristics and HR practices need to be adapted based on the trajectory each employee follows. Third, organizations should make sure that employees have sufficient job resources and challenging demands, whereas hindering demands should be minimized. Fourth, organizations should provide employees of all ages with sufficient developmental practices. Finally, employees who face major life events in private life should be offered accommodative practices whereas employees who face major life events at work should be offered additional developmental and utilization practices. Regardless of the type of life event organizations should provide employees who face major life events with extra job resources such as supervisor and colleague support.

CHAPTER 10

Samenvatting (summary in Dutch)

Inleiding

Demografische ontwikkelingen stellen organisaties voor de uitdaging om hun werknemers tot op latere leeftijd door te laten werken tot aan of zelfs na de pensioengerechtigde leeftijd (zie Hoofdstuk 1). In dit proefschrift stel ik voor dat werknemers tot hun pensioengerechtigde leeftijd of zelfs daarna door zullen werken als zij het vermogen, de motivatie en de mogelijkheid hebben om langer door te werken. Een toenemend aantal onderzoeken richt zich op het bevorderen van doorwerken tot op latere leeftijd. Er zijn echter maar weinig empirische studies die de mogelijke effecten van Human Resource Management (taakeisen op het werk, hulpbronnen op het werk en HR activiteiten) en de rol van grote levensgebeurtenissen hierin onderzoeken. Om deze lacune te helpen opvullen richt ik mij met deze dissertatie op het testen van de effectiviteit van taakeisen op het werk, hulpbronnen op het werk en HR activiteiten in het faciliteren van het kunnen, willen en mogen doorwerken van oudere werknemers en werknemers die grote levensgebeurtenissen meemaken. De hoofdvraag van deze dissertatie is:

In hoeverre beïnvloeden Human Resource Management, grote levensgebeurtenissen en de interactie daartussen het in stand houden van het kunnen, willen en mogen doorwerken?

Er zijn vijf hoofdthema's geformuleerd om deze vraag te beantwoorden, namelijk: (1) het integreren van kennis rondom langer doorwerken uit verschillende disciplines (arbeidsgezondheidspsychologie, werk en organisatie psychologie en loopbaanmanagement), (2) het overwinnen van methodologische problemen in studies over langer doorwerken, (3) het bestuderen van de impact van grote levensgebeurtenissen op uitkomsten die gerelateerd zijn aan langer doorwerken, (4) het bestuderen van de impact van kenmerken van de baan (taakeisen en hulpbronnen op het werk) op uitkomsten die gerelateerd zijn aan langer doorwerken en (5) het

bestuderen van de impact van leeftijdsgerelateerde bundels van HR activiteiten op uitkomsten die gerelateerd zijn aan langer doorwerken.

Overzicht van de belangrijkste resultaten voor elk van de vijf hoofdthema's

1. Het integreren van kennis rondom langer doorwerken uit verschillende disciplines

Langer doorwerken wordt vanuit verschillende disciplines en perspectieven (onder andere arbeidsgezondheidspsychologie, werk en organisatie psychologie en loopbaanmanagement) onderzocht. De onderzoeksresultaten uit deze disciplines zijn niet goed met elkaar geïntegreerd. Om de onderzoeksresultaten van deze disciplines met elkaar te verbinden, wilde ik met behulp van de Ability-Motivation-Opportunity theorie een overkoepelend perspectief realiseren. Ik heb de uitkomsten van de drie hiervoor genoemde disciplines gecombineerd (werkvermogen vanuit arbeidsgezondheidspsychologie, motivatie om door te werken vanuit de werk en organisatie psychologie en inzetbaarheid vanuit loopbaanmanagement) om meer inzicht te krijgen in langer doorwerken. Ik refereer aan deze uitkomsten als het langer kunnen, willen en mogen doorwerken. In Hoofdstuk 2 en 5 zijn alle drie deze uitkomsten gebruikt. In Hoofdstuk 3 en 4 hebben we ons gefocust op het kunnen en willen doorwerken. Tot slot, in Hoofdstuk 6 hebben we ons alleen gefocust op het kunnen doorwerken.

De systematische review die in Hoofdstuk 2 gerapporteerd wordt laat zien dat onderzoek naar de relatie tussen Human Resource Management en langer doorwerken zich vooral focust op werkvermogen als uitkomst, terwijl onderzoek naar het willen en mogen doorwerken nog erg beperkt is. Daarnaast laten de resultaten van de overige hoofdstukken zien dat het willen en kunnen doorwerken zich op een andere manier ontwikkelen na verloop van tijd: werkvermogen neemt over het algemeen af na verloop van tijd terwijl de motivatie om door te werken over het algemeen toeneemt na verloop van tijd. Ook zijn er een aantal verschillen in hoe hulpbronnen op

het werk, taakeisen op het werk en HR activiteiten gerelateerd zijn aan de drie uitkomsten. Werktijden hebben bijvoorbeeld een negatief effect op werkvermogen, maar het effect van werktijden op de motivatie om door te werken was gemengd. Daarnaast hebben behoud activiteiten een negatief effect op werkvermogen, maar hebben ze geen effect of de motivatie om door te werken. Verder bleek dat fysieke taakeisen het werkvermogen beperken, terwijl ze de motivatie om door te werken juist stimuleren.

2. *Het overwinnen van methodologische problemen in studies over langer doorwerken*

Het grootste deel van de studies die het kunnen, willen en mogen doorwerken bestuderen zijn cross-sectionele studies die een variabele-gecentreerde benadering gebruiken. Echter impliceert ouder worden op het werk een tijdsdimensie die niet gevat kan worden in een cross-sectionele studie. Daarnaast weten we dat de verschillen tussen individuen groter worden naarmate ze ouder worden. Daarom zijn longitudinale en persoons-gecentreerde studies geschikter om langer doorwerken te bestuderen. Om die reden heb ik onderzocht hoe uitkomsten gerelateerd aan langer doorwerken zich ontwikkelen na verloop van tijd en of er verschillende subgroepen onderscheiden kunnen worden in deze ontwikkeling na verloop van tijd. Ik heb hiervoor gebruik gemaakt van longitudinale studies (Hoofdstuk 3, 4 en 5) en een persoons-gecentreerde benadering (Hoofdstuk 4).

De resultaten van Hoofdstuk 3 laten zien dat onder oudere werknemers het werkvermogen over het algemeen licht afneemt na verloop van tijd, terwijl de motivatie om door te werken over het algemeen licht toeneemt na verloop van tijd. De resultaten van Hoofdstuk 4 laten zien dat er verschillende subgroepen onderscheiden kunnen worden in hoe het werkvermogen en de motivatie om te werken zich ontwikkelen na verloop van de tijd. Met betrekking tot werkvermogen laten de meeste werknemers een lichte toename zien na verloop van tijd, terwijl

er zowel een kleine subgroep is die een sterke afname laat zien over de tijd en een kleine subgroep die een sterke stijging laat zien na verloop van tijd. Met betrekking tot de motivatie om te werken laat het grootste deel van de werknemers een lichte stijging zien na verloop van tijd, ongeveer een kwart van de oudere werknemers blijft stabiel na verloop van tijd en een kleine subgroep laat een sterke stijging zien na verloop van tijd. Tot slot laten de resultaten van Hoofdstuk 5 zien dat het kunnen, willen en mogen doorwerken licht afnemen na verloop van tijd maar dat de grootste afnames worden veroorzaakt door grote levensgebeurtenissen en niet door leeftijd.

3. *Het bestuderen van de impact van grote levensgebeurtenissen op uitkomsten die gerelateerd zijn aan langer doorwerken*

Gedurende hun werkzame leven zullen werknemers een aantal grote levensgebeurtenissen meemaken. Eerdere studies geven aan dat deze levensgebeurtenissen wellicht een belangrijke rol kunnen spelen in de ontwikkeling van het kunnen, willen en mogen doorwerken. Er zijn echter maar weinig studies die hebben onderzocht wat de impact is van grote levensgebeurtenissen op uitkomsten gerelateerd aan langer doorwerken. Om dit hiaat op te helpen vullen heb ik onderzocht hoe grote levensgebeurtenissen gerelateerd zijn aan het kunnen, willen en mogen doorwerken in een kwalitatieve studie en in een cross-sectionele multilevel studie.

De resultaten van de kwalitatieve studie die gepresenteerd zijn in Hoofdstuk 5 laten zien dat de grootste fluctuaties in het kunnen, willen en mogen doorwerken worden veroorzaakt door grote levensgebeurtenissen. Deze fluctuaties komen vooral voor wanneer grote levensgebeurtenissen leiden tot veranderingen in taakeisen op het werk of privé en/of in persoonlijke hulpbronnen of hulpbronnen op het werk en wanneer deze veranderingen vervolgens leiden tot veranderingen in de fit tussen de persoon en de baan. In de empirische

studie in Hoofdstuk 6 hebben we ons specifiek gefocust op levensgebeurtenissen in de privé-situatie. Onze bevindingen laten zien dat taakeisen in de thuisomgeving die veroorzaakt worden door ontwrichtende levensgebeurtenissen in de privésfeer een negatief effect hebben op het werkvermogen.

4. *Het bestuderen van de impact van kenmerken van de baan op uitkomsten die gerelateerd zijn aan langer doorwerken*

Om werkgevers richtlijnen te geven over hoe ze ervoor kunnen zorgen dat hun werknemers langer doorwerken is het belangrijk om inzicht te geven in hoe kenmerken van de baan het kunnen, willen en mogen doorwerken beïnvloeden. Tot op heden zijn er nog maar weinig studies die deze relatie bestuderen. De resultaten van de studies die al wel gedaan zijn, zijn uitgevoerd binnen verschillende disciplines die niet goed geïntegreerd zijn (zie hoofdthema 1) en maken vaak gebruik van een cross-sectionele en variabele-gecentreerde aanpak (zie hoofdthema 2). Om meer inzicht te geven in de relatie tussen kenmerken van de baan en langer doorwerken heb ik onderzocht hoe taakeisen en hulpbronnen op het werk het kunnen, willen en mogen doorwerken beïnvloeden. We hebben een systematische review (Hoofdstuk 2) en drie empirische studies (Hoofdstuk 4, 5 en 6) uitgevoerd om dit hiaat op te vullen.

De resultaten van Hoofdstuk 2, 4 en 5 laten samen zien dat hulpbronnen op het werk (vooral autonomie en sociale steun) belangrijke factoren zijn in het behouden en ontwikkelen van het willen, kunnen en mogen doorwerken en dat deze hulpbronnen op het werk bijzonder belangrijk zouden kunnen zijn voor werknemers die grote levensgebeurtenissen meemaken. Daarnaast suggereren onze bevindingen dat taakeisen op het werk over het algemeen negatief gerelateerd zijn aan het kunnen, willen en mogen doorwerken. Fysieke taakeisen zijn vooral negatief gerelateerd aan werkvermogen, terwijl emotionele taakeisen vooral negatief gerelateerd zijn aan

de motivatie om door te werken. Een aantal taakeisen op het werk (specifiek mentale taakeisen en uitdagend werk) zijn daarentegen juist gunstig voor het werkvermogen en de motivatie om door te werken.

5. *Het bestuderen van de impact van leeftijdsgerelateerde bundels van HR activiteiten op uitkomsten die gerelateerd zijn aan langer doorwerken*

Hoewel er wordt aangenomen dat HR activiteiten een belangrijk middel kunnen zijn waarmee organisaties langer doorwerken bij hun werknemers kunnen stimuleren zijn er slechts enkele studies die de relatie tussen HR activiteiten en het kunnen, willen en mogen doorwerken bestudeerd hebben. Om bij te dragen aan de studies op dit terrein heb ik de relatie tussen ontwikkel-, behoud-, benut-, en ontzie-activiteiten en het kunnen, willen en mogen doorwerken onderzocht. We hebben drie empirische studies uitgevoerd (waarvan er twee kwantitatief zijn en één kwalitatief) om deze relatie te onderzoeken.

De resultaten van de systematische review in Hoofdstuk 2 laten zien dat de meerderheid van de studies die de effectiviteit van Human Resource Management op uitkomsten gerelateerd aan langer doorwerken bestuderen, zich focussen op kenmerken van de baan in plaats van HR activiteiten. Daarnaast laat deze review zien dat behoud- en ontzie-activiteiten een positief effect hebben op werkvermogen, terwijl ontwikkel- en benut-activiteiten gemixte resultaten laten zien ten opzichte van werkvermogen. Bovendien lijken ontwikkel-activiteiten een positief effect te hebben op inzetbaarheid en de motivatie om door te werken. Er zijn onvoldoende studies die de relatie tussen behoud-, benut- en ontzie-activiteiten en inzetbaarheid (als indicator van mogen doorwerken) en de motivatie om door te werken bestuderen. Verder zijn er onvoldoende studies die de relatie tussen HR activiteiten en leeftijdsdiscriminatie (als indicator van het mogen

doorwerken) bestuderen om conclusies te kunnen trekken over de effectiviteit van deze activiteiten.

Daarnaast laten de resultaten van de empirische studie, die in Hoofdstuk 3 worden gepresenteerd, zien dat ontwikkel-activiteiten een positief effect hebben op werkvermogen, terwijl behoud- en ontzie-activiteiten een negatief effect hebben. Verder vonden we dat ontzie-activiteiten een negatief effect hebben op de motivatie om door te werken. Bovendien laten de resultaten van de kwalitatieve studie die in Hoofdstuk 5 gepresenteerd wordt zien dat ontzie-activiteiten het meest nuttig zijn om het willen, kunnen en mogen doorwerken te herwinnen na grote levensgebeurtenissen in de privésfeer, terwijl ontwikkel- en benut-activiteiten het meest nuttig lijken te zijn om het kunnen, willen en mogen doorwerken te herwinnen na grote levensgebeurtenissen op het werk. Tot slot laten de resultaten van de empirische studie, die in Hoofdstuk 6 gepresenteerd worden, zien dat ontwikkel-activiteiten belangrijk zijn voor het werkvermogen van werknemers. Ze kunnen echter niet het negatieve effect van ontwrichtende levensgebeurtenissen in de privésfeer tegen gaan. Het positieve effect van ontwikkel-activiteiten lijkt zelfs verloren te gaan wanneer ze aangeboden worden aan medewerkers die ontwrichtende levensgebeurtenissen in de privésfeer meemaken in een organisatie waar het ondersteunende klimaat van leidinggevende als laag ervaren wordt.

Discussie en conclusie

In Hoofdstuk 7 zijn de bevindingen van deze dissertatie samengevat en zijn de theoretische en praktische implicaties besproken. Deze dissertatie laat zien dat organisaties doorwerken tot de pensioengerechtigde leeftijd kunnen stimuleren door voldoende hulpbronnen en uitdagende taakeisen op het werk aan te bieden, terwijl het aan te bevelen is om belemmerende taakeisen op

het werk te beperken. Met betrekking tot HR activiteiten lijken ontwikkel-activiteiten het beste middel zijn om het willen, kunnen en mogen doorwerken te stimuleren, zeker wanneer deze gecombineerd worden met een hoge mate van support van de leidinggevende. Voor het effect van ontzie-, behoud- en benut-activiteiten op het kunnen, willen en mogen doorwerken werden gemixte resultaten gevonden maar meestal hadden ze een negatief effect. Dit zou kunnen aangeven dat deze activiteiten vooral ad-hoc en op reactieve wijze geïmplementeerd zijn en niet op een consistente preventieve manier. Wellicht zou dit aan kunnen geven dat deze activiteiten geschikter zijn als reactie op grote levensgebeurtenissen. Er zijn echter meer empirische studies nodig om inzicht te geven in deze effecten.

Theoretische implicaties

Ten eerste laat deze dissertatie zien dat het kunnen, willen en mogen doorwerken theoretisch van elkaar verschillen en samen bestudeerd moeten worden om een beter beeld te krijgen van hoe organisaties langer door werken kunnen stimuleren. Daarnaast laat deze dissertatie zien dat de Ability-Motivation-Opportunity theorie ook toegepast kan worden op distale uitkomsten en niet alleen op proximale voorspellers. Ten tweede helpen longitudinale en persoons-gecentreerde studies ons om het complexe proces van ouder worden op het werk beter te begrijpen. Daarnaast bevestigen onze uitkomsten dat trajecten in werk uitkomsten groei, behoud, herstel en het reguleren van verlies patronen laten zien. Ten derde benadrukken onze resultaten de noodzaak om zowel de persoonlijke context als de werk context mee te nemen wanneer we werkuitkomsten onderzoeken. Het work-home resources model en de person-environment fit theorie lijken geschikte theorieën om deze relatie te onderzoeken. Ten vierde bevestigen onze resultaten in grote lijnen de proposities uit het Job Demands-Resources model dat hulpbronnen op het werk gunstig zijn voor werkuitkomsten gerelateerd aan langer door werken terwijl

taakeisen op het werk werkuitkomsten gerelateerd aan langer doorwerken beperken. Het is echter belangrijk om onderscheid te maken tussen belemmerende en uitdagende taakeisen (bijvoorbeeld mentale taakeisen en uitdagend werk). Als laatste hebben we ons niet alleen gefocust op ontwikkel- en benut-activiteiten (die gezien kunnen worden als High Performance Work practices), maar hebben we ook ontzie- en behoud-activiteiten meegenomen die minder zijn gefocust op het verbeteren van werkprestaties en meer op het behoud van (gezondheid gerelateerd) welzijn in vergelijking met High Performance Work practices. Door ontzie- en behoud-activiteiten toe te voegen kunnen we HR activiteiten conceptualiseren als hulpbronnen op het werken die werknemers helpen om met hun taakeisen op het werk om te gaan. Daarnaast onderstrepen onze resultaten dat ontzie- en behoud-activiteiten niet goed geïmplementeerd worden. Ze lijken ad-hoc en reactief geïmplementeerd te worden en niet op een consistente preventieve manier, waardoor hun mogelijke positieve effect beperkt wordt.

Praktische implicaties

Deze dissertatie geeft een aantal belangrijke aanbevelingen voor de praktijk. Ten eerste geven de resultaten van deze studie aan dat organisaties zich bewust moeten zijn dat er wellicht andere acties nodig zijn om het willen, kunnen of mogen doorwerken te stimuleren. Ten tweede geven de resultaten van deze dissertatie aan dat organisaties zich bewust moeten zijn dat de manier waarop werknemers ouder worden kan verschillen van persoon tot persoon en dat kenmerken van de baan en HR activiteiten aangepast moeten worden op het individuele traject van elke werknemer. Ten derde is het van belang dat organisaties ervoor zorgen dat werknemers voldoende hulpbronnen en uitdagende taakeisen op het werk hebben, terwijl belemmerende taakeisen beperkt moeten worden. Ten vierde is het relevant dat organisaties ervoor zorgen dat medewerkers van alle leeftijden voldoende ontwikkelingsmogelijkheden krijgen. Tot slot helpt

het werknemers die grote levensgebeurtenissen in de privésfeer meemaken als de werkgever hen ontzie-activiteiten aanbiedt, terwijl medewerkers die grote levensgebeurtenissen op het werk meemaken vooral geholpen worden als hun werkgever hen ontwikkel- en benut-activiteiten aanbiedt. Medewerkers die grote levensgebeurtenissen meemaken, ongeacht het type levensgebeurtenis, zijn er gebaat bij als zij extra hulpbronnen op het werk krijgen zoals steun van de leidinggevende en collega's.

CHAPTER 11

Dankwoord (acknowledgements)

Dankwoord

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APPENDICES

Appendix 1. Search terms (Chapter 2)

Appendix 2. Checklist formative or reflective measure (Chapter 3)

Appendix 3. Means (M), Standard Deviations (SD) and correlations (Chapter 3)

Appendix 4. Example drawing ability to continue working (Chapter 5)

Appendix 5. Initial coding scheme (Chapter 5)

Appendix 6. Final coding scheme (Chapter 5)

Appendix 1. Search terms (**Chapter 2**)

The main terms used were “employability” OR “work ability” OR “motivation to continue working” OR “motivation to retire” OR “motivation to work until retirement age” OR “retirement intentions” OR “age discrimination” OR “discrimination of older workers” OR “attitudes towards older workers” OR “culture towards older workers” OR “inclusion of older workers” OR “age diversity” OR “age stereotypes” OR “age meta-stereotypes” OR "retention of older workers".

The second search terms with which these terms were combined were “employee” OR “worker” OR “professional”.

The search was specified further with the third search terms “HR practices” OR “development activities” OR “training” OR “learning” OR “maintenance activities” OR “health checks” OR “performance appraisal” OR “safety and health training” OR “courses” OR “utilization activities” OR “job movement” OR “job redesign” OR “mentoring” OR “on-time policy” OR “participation” OR “accommodative activities” OR “additional leave” OR “adjusted work planning” OR “demotion” OR “early retirement” OR “work schedules” OR “semi-retirement” OR “reduced workload” OR “job demands” OR “job resources” OR “organizational practices” OR “work characteristics” OR “work-related factors” OR “support” OR “equal opportunities” OR “equal access” OR ”ageism policy” OR “age-inclusive*” OR “age neutral*” OR “age-friendly*”).

Appendix 2. Checklist formative or reflective measure (Fleuren et al., 2018) (**Chapter 3**)

Checklist item	**Application to usage of HR bundles**
1. Are the indicators (items) (A) defining characteristics or (B) manifestations of the construct?''A'' indicates a formative and ''B'' a reflective measurement model.	The use of a HR practices can be seen as a defining characteristic of the different bundles of HR practices, because combined the use of these HR practices describe the degree to which a certain bundle is made used of.
2. Would changes in the indicators/items cause changes in the construct or the other way around? The former indicates formative and the latter reflective.	The former. If one stops using one developmental practice this would alter the bundle developmental HR practices.
3. Should each indicator capture exactly the same? ''Yes'' indicates reflective; ''no, but they share conceptual unity in terms of causing a common construct'' indicates causal formative; and ''not at all'' indicates composite formative indicators.	No, the indicators are not meant to capture exactly the same. That a person uses one HR practice within the maintenance HR bundle does not automatically mean that all other practices within this bundle are used.
4. Would dropping one of the indicators alter the conceptual domain of the construct? ''Yes'' indicates formative; ''no'' indicates reflective.	Yes. As indicated by the reviewers, dropping training would alter the meaning of the developmental HR bundle significantly.
5. Should a change in one of the indicators be associated with changes in the other indicators? ''Yes'' indicates reflective; ''no'' indicates formative.	No. If one person stops using training as a practice this does not necessarily have to mean that this person will stop using all other practices in the bundle of development HR practices.
6. Are the indicators expected to have the same antecedents and	No. For example the use of training can be used in response to bad performance, whereas

consequences? ‘‘Yes’’ indicates reflective; ‘‘no’’ indicates formative.	a promotion is caused by good performance. Yet, both practices are part of the same bundle.

Appendix 3. Means (M), Standard Deviations (SD) and correlations (**Chapter 3**)

Table 1. Means (M) and Standard Deviations (SD)

	M.	SD.		M.	SD.
1. Development T1	1.38	1.18	13. Development T3	1.30	1.52
2. Maintenance T1	.23	.52	14. Maintenance T3	.22	.50
3. Utilization T1	.47	.62	15. Utilization T3	.41	.61
4. Accommodation T1	.29	.63	16. Accommodation T3	.25	.59
5. Work ability T1	8.16	1.21	17. Work ability T3	8.15	1.21
6. Preferred retirement age T1	63.63	3.32	18. Preferred retirement age T3	64.43	3.29
7. Development T2	1.31	1.16	19. Development T4	1.26	1.12
8. Maintenance T2	.22	.50	20. Maintenance T4	.23	.51
9. Utilization T2	.42	.61	21. Utilization T4	.40	.60
10. Accommodation T2	.25	.60	22. Accommodation T4	.26	.60
11. Work ability T2	8.15	1.17	23. Work ability T4	8.16	1.17
12. Preferred retirement age T2	63.99	3.15	24. Preferred retirement age T4	64.77	3.28
			25. Age	54.34	5.49
			26. Gender	1.44	.50
			27. Health	3.29	.88

Table 2. Correlations (part 1)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.
1. Development T1																		
2. Maintenance T1	.01																	
3. Utilization T1	.21**	.00																
4. Accommodation T1	-.09**	.26**	-.10**															
5. Work ability T1	.10**	-.13**	-.01	-.11**														
6. Preferred retirement age T1	-.01	.00	-.03*	-.01	.10**													
7. Development T2	.62**	-.02	.16**	-.08**	.09**	.00												
8. Maintenance T2	-.01	.58**	-.01	.18**	-.12**	.01	-.01											
9. Utilization T2	.14**	.01	.29**	-.01	-.03*	-.02	.18**	-.01										
10. Accommodation T2	-.04**	.17**	-.03*	.33**	-.12**	.00	-.07**	.27**	-.06**									
11. Work ability T2	.08**	-.13**	-.02*	-.07**	.47**	.10**	.11**	-.15**	-.01	-.12**								
12. Preferred retirement age T2	-.04**	-.01	-.03**	.01	.09**	.69**	.00	-.01	-.04**	.00	.13**							
13. Development T3	.56**	-.01	.15**	-.06**	.07**	-.02	.63**	-.03*	.15**	-.06**	.09**	-.02						
14. Maintenance T3	0.00	.49**	.01	.12**	-.11**	.00	.00	.58**	-.01	.18**	-.11**	-.02	.00					
15. Utilization T3	.16**	.00	.26**	-.02	-.024*	-.03*	.15**	.00	.33**	-.02	-.02	-.03*	.20**	.00				
16. Accommodation T3	-.03**	.10**	.00	.21**	-.10**	-.02	-.06**	.14**	.00	.34**	-.12**	-.03*	-.08**	.19**	-.07**			
17. Work ability T3	.07**	-.11**	-.02	-.06**	.42**	.07**	.08**	-.11**	-.04**	-.08**	.47**	.10**	.10**	-.11**	-.01	-.10**		
18. Preferred retirement age T3	-.02*	-.01	-.03**	.03*	.09**	.61**	-.02	-.02	-.02	.01	.11**	.69**	.00	-.03*	-.04**	-.01	.11**	
19. Development T4	.54**	-.02	.17**	-.05**	.05**	-.02	.56**	-.01	.16**	-.05**	.07**	-.01	.62**	-.01	.18**	-.06**	.08**	-.02
20. Maintenance T4	-.01	.45**	.01	.11**	-.09**	.01	.01	.52**	.01	.18**	-.09**	-.01	-.01	.56**	.00	.15**	-.12**	-.02
21. Utilization T4	.15**	0.01	.24**	-.02	-.04**	-.04**	.15**	.01	.28**	-.01	.00	-.026*	.16**	.00	.36**	-.04**	-.01	-.02
22. Accommodation T4	-.02	.10**	-.01	.15**	-.06**	.01	-.04**	.13**	.00	.24**	-.08**	-.02	-.05**	.13**	-.01	.36**	-.08**	-.02
23. Work ability T4	.04**	-.10**	-.01	-.04**	.38**	.08**	.04**	-.11**	-.03*	-.08**	.41**	.10**	.06**	-.11**	-.03*	-.07**	.45**	.12**
24. Preferred retirement age T4	-.02	0.01	-.03*	.01	.09**	.56**	-.02	.00	-.02	.00	.11**	.59**	.00	-.04**	-.02	-.02	.12**	.65**
25. Age	-.15**	.22**	-.13**	.18**	-.02**	.22**	-.15**	.22**	-.13**	.19**	-.02	.20**	-.14**	.19**	-.13**	.17**	-.01	.18**
26. Gender	-.11**	0.00	.00	-.02*	-.05**	-.04**	-.12**	-.02	-.01	-.04**	-.04**	-.05**	-.11**	-.01	.00	-.02*	-.05**	-.04**
27. Health	.11**	.18**	.01	.09**	-.47**	-.07**	-.09**	.17**	.02	.08**	-.35**	-.06**	-.10**	.15**	.00	.07**	-.34**	-.05**

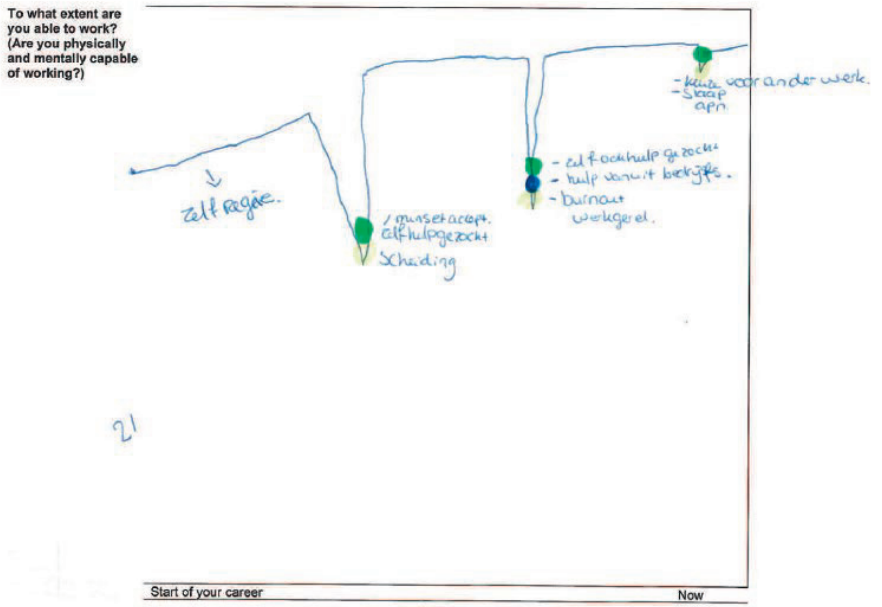
Note. N = 12029, * = p < .05, ** = p < .01

Table 2. Correlations (part 2)

	19.	20.	21.	22.	23.	24.	25.	26.
20. Maintenance T4	-.01							
21. Utilization T4	.21**	.00						
22. Accommodation T4	-.08**	.19**	-.07**					
23. Work ability T4	.08**	-.13**	-.02	-.09**				
24. Preferred retirement age T4	-.02	-.04**	-.02	-.02	.15**			
25. Age	-.15**	.21**	-.15**	.16**	.00	.22**		
26. Gender	-.08**	.01	.01	0.00	-.04**	-.06**	-.04**	
27. Health	-.08**	.15**	.02	.05**	-.32**	-.06**	.03**	.03**

Appendix 4. Example drawing ability to continue working (**Chapter 5**)

In this drawing markers with different colors were used to indicate career shocks (yellow), HR practices or job resources (blue) and self-management (green).



Note. From right to left the following notes are made in the drawing: Self-management. Mindset acceptation, looking for help, divorce. Looking for help, assistance from the company, work-related burn-out. Looking for a new job, sleep apnea.

Appendix 5. Initial coding scheme (**Chapter 5**)

Code	Categories	Sub-categories	Definition
Career shocks			A disruptive and extraordinary event that is, at least to some degree, caused by factors outside the focal individual's control and that triggers a deliberate thought process concerning one's career. The occurrence of a career shock can vary in terms of predictability and can be either positively or negatively valenced (Akkermans, Seibert, Mol, 2018, p.4)
	Positive career shocks in private life	• Family expansion/ having children • Having grand children • Getting married	A career shock that is perceived as a positive event and occurs in private life
	Negative career shocks in private life	• Death of a loved one • Becoming chronically ill • Partner or loved one becomes chronically ill	A career shock that is perceived as a negative event and occurs in private life
	Positive career shock in the work atmosphere	• Career successes such as a promotion • Attractive external opportunities	A career shock that is perceived as a positive event and occurs at work
	Negative career shock in the work atmosphere	• Career failures (e.g. being passed for a promotion or having an adjustment in salary which was too low) • Career stagnation • Significant mentor left	A career shock that is perceived as a negative event and occurs at work

		• Being underqualified for a job • Demotion • Being fired • Organizational change events	
Developments in sustainable careers			We consider a career to be sustainable when individuals maintain or enhance their ability, motivation, and opportunity to (continue) work(ing) over the span of their career (Pak et al., 2019)
	Work ability	• Decline • Growth • No change	The match between a person's mental and physical capacity in relation to the demands of his or her job (Ilmarinen et al., 1997)
	Motivation	• Decline • Growth • No change	The degree to which people find it important to partake in a work arrangement and intend to do so until they reach the retirement age (Kanfer et al., 2013)
	Employability	• Decline • Growth • No change	The extent that a person perceives to have opportunities to maintain one's current job or find a new job when needed in either the internal or external labour market (Vanhercke et al., 2014)
HR practices			
	Accommodative practices	• Part-time work • Partial retirement • Additional leave • Demotion • Early retirement • Exemption from overtime	HR practices that are aimed at assisting employees to function at a lower level when it is no longer possible to regain former performance levels (Kooij et al., 2014)

		• Exemption from night shifts • Reduced workload	
	Utilization practices	• Lateral job movements • Participation • Second career • Task enrichment	HR practices that are aimed at making use of the specific experience, knowledge, and competences that older workers have (Kooij et al., 2014)
	Maintenance practices	• Compressed workweek (4x9) • Ergonomic adjustments to the workplace • Flexible benefits • Performance appraisal • Pay for performance	HR practices that are aimed at helping employees in sustaining their performance despite the possible negative effects of career shocks (Kooij et al., 2014)
	Development practices	• Career planning • Development on the job • Promotion • Training	HR practices that are aimed at helping workers to improve their performance (Kooij et al., 2014)

Appendix 6. Final coding scheme (**Chapter 5**)

Code	Categories	Sub-categories	Definition/coding rules	Example quote
Career shocks			A disruptive and extraordinary event that is, at least to some degree, caused by factors outside the focal individual's control and that triggers a deliberate thought process concerning one's career. The occurrence of a career shock can vary in terms of predictability and can be either positively or negatively valenced (Akkermans, Seibert, Mol, 2018, p.4) Coding rules: Major life events are coded as career shocks when (1) they had any impact on the ability, motivation, and opportunity to work, (2) they were either unexpected or the consequences could not be predicted beforehand, and (3) this type of event is extraordinary for this individual.	(1) This deep gap was around the age of 28. I got a divorce here. That had quite a deep impact both privately and at work for a year or two. (participant 3, 57 year old Food & Beverage manager) (2) In 2014 I had that bypass operation. You can get side effects from that and I got an intestinal entrapment from that one and a half years later (participant 9, 51 year old nurse) (3) It was the biggest change in my entire life actually. Becoming a mother. You know, you just cannot imagine what it brings about. You can read about it, you can bring beautiful clothes home, but you do not know what it does with you until you bring the kid home. What it does with your relationship, your work (participant 14, 57 year old nurse)
	Career shocks in private life	• Family expansion/ having children • Having grand children • Getting married • Meeting partner	A career shock that occurs in private life	The only real dip in my career was the divorce actually. That was just a very intense moment causing me to not work for about six weeks. Because I just could not work at all. I had to arrange things at home, was sad, the kids, and all

		• Moving • Death of a loved one • Being in an accident • Becoming chronically ill • Having physical complaints and/or surgery • Partner or loved one becomes chronically ill • Partner gets fired • Divorce • Children hit puberty		those things (participant 4, 57 year old medical assistant) Uhm, well when you get cancer you kind of cross a border. It is very weird, you just sort of step out of the normal society, also mentally. It is like everything that happens is happening on a stage or you are at the stage yourself and you are no longer part of the society. It is a really weird phenomena and uhm, what did you actually ask? (participant 27, 65 year old innovation consultant)
	Career shocks in the work atmosphere	• Getting a first job • Promotion • Starting own company • Being asked for a large project • Getting a new job • Demotion • Being fired • Organizational change (bankruptcy, department being cancelled, merger, reorganization) • Conflict with colleague or supervisor • Involuntary transfer	A career shock that occurs at work	On top of that we had just bought a house in Eindhoven near my work, yes and then suddenly… That was a very uncertain period because it is immediately clear that we are going to be left out. And secondly the question rises where are we going to go and how? That was a process of one and a half years before that became clear. There were a few candidates to take us over. Than you notice that it becomes less, so that was not so nice (participant 24, 65 year old mechanical engineer)

Developments in sustainable careers			We consider a career to be sustainable when individuals maintain or enhance their ability, motivation, and opportunity to (continue) work(ing) over the span of their career (Pak et al., 2019)	
	Work ability	• High work ability • Low work ability • Average work ability • Decline • Growth • No change • Fluctuations in work ability	The match between a person's mental and physical capacity in relation to the demands of his or her job (Ilmarinen et al., 1997)	That decreased when the children came because it is both physically and mentally quite heavy, you are out of the running for a while (participant 18, 60 year old teacher)
	Motivation	• High motivation • Low motivation • Decline • Growth • No change • Fluctuations in motivation	The degree to which people find it important to partake in a work arrangement and intend to do so until they reach the retirement age (Kanfer et al., 2013)	Other things are important then which is why your motivation decreases (participant 24, 65 year old mechanical engineer)
	Employability	• High employability • Low employability • Decline • Growth • No change	The extent that a person perceives to have opportunities to maintain one's current job or find a new job when needed in either the internal or external labour market (Vanhercke et al., 2014)	So actually, you did not get the change to continue working at the fire department. They did not expect that at all. They pretty much wrote me off. Sick for more than three months, let's throw him out (participant 10, 61 year old firefighter)

Use of HR practices				
	Accommodative practices	• Part-time work • Partial retirement • Additional leave • Demotion • Early retirement • Exemption from overtime • Exemption from night shifts • Reduced workload • Hiring a substitute	The use of HR practices that are aimed at assisting employees to function at a lower level when it is no longer possible to regain former performance levels (Kooij et al., 2014)	In the sense that he offered me to take additional leave. That felt really good because it was a really intense period and then I could really take the time that I needed (participant 27, 63 year old research & development employee) Well, that is how I regained my motivation. Because I only worked for three days per week I did have the possibility to arrange thins better at home (participant 1, 61 year old daycare employee)
	Utilization practices	• Lateral job movements • Participation • Second career • Task enrichment • Mentoring • Task rotation	The use of HR practices that are aimed at making use of the specific experience, knowledge, and competences that older workers have (Kooij et al., 2014)	But then I got lucky, because there was a really big development going on in my company. We want from a decentral meal production, which means that we were cooking at all locations, to a central meal production. I became the production manager there, from that facility and he was not put in that division. He was put into a different division so he did not bother me anymore (participant 3, 57 year old Food & Beverage manager) Yes, also from position, I got more responsibilities in my new job. First it was just the drawing and very occasionally some calculating,

				but where I work now I really have, yes, all responsibilities of the position so I have to calculate, make offers, the drawing (participant 22, 54 year old planner)
	Maintenance practices	• Ergonomic adjustments to the workplace • Performance appraisal • Working from home • Physical check • Appointments with company doctor or corporate social workers • Coaching • Tools to assist with physical tasks • Adjustments in work tasks	The use of HR practices that are aimed at helping employees in sustaining their performance despite the possible negative effects of career shocks (Kooij et al., 2014)	Before I had the accident, I was working with people with autism and behavioral disorders. After that, I worked with mentally handicapped people for a while. They are already in a chair so you do not have to lift them. That was physically a lot less heavy. I did that for about three months. After a while, I could start doing my normal job again (participant 9, 51 year old nurse). Then I had a good conversation about that with my manager and I got coaching. After that, I started taking control again. That was the image then, having the steering wheel in my own hands. That worked very well and I started to become more proactive and that had effect (participant 18, 61 year old teacher)
	Development practices	• Career planning • Development on the job • Promotion • Training • Outplacement	The use of HR practices that are aimed at helping workers to improve their performance (Kooij et al., 2014)	Here I came from that period that I was offered the management education. That made me more motivated and after that I got transferred to that other location (participant 2, 62 year old paint specialist)

				Than the opportunity presented itself to follow a course for cultural art education. I followed a dance course, that was a very interesting course by the way. Then I agreed with my directed that if I followed that course and would make it that I would start teaching again to the higher grades and that I would be placed in the LD paygrade. If you have the LD paygrade, you also have to teach the higher grades. So I did that course and I was very motivated, that took about two years (participant 5, 62 year old music teacher)
A change in job resources		• Autonomy • Support supervisor • Support colleagues • Recognition • Job security • Flexibility in scheduling	This code is applied when participants indicated that job resources changed because of the career shock. Job resources are defined as "physical, psychological, social, or organizational aspects of the job that are either/or functional in achieving work goals, reduce job demands and the associated physiological and psychological costs and stimulate personal growth, learning, and development" (Bakker and Demerouti, 2007, p. 312)	Also in this period, I received a lot of support from my supervisor and the HR-professional. They gave me the space I needed. I could not stand to stay away, but I also was not capable of running the entire house and all functions. It was very double. But they helped me, because I was allowed to pick out the persons who assisted the department myself (participant 8, 61 year old location manager) We had a boss who would think along a lot. He was not weak. You know what I mean? I mean that if my child was sick I could take holidays or get some time to arrange a babysitter (participant 14, 57 year old nurse)

A change in personal resources		• Energy • Health • Sleep quality • Stamina	This code is applied when participants indicated that personal resources changed because of the career shock. Personal resources are defined as "aspects of the self that are generally linked to resiliency and refer to individuals' sense of their ability to control and impact upon their environment successfully" (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007, p. 124)	Yes and uhm, I never really got my stamina back after that (participant 27, 65 year old innovation consultant) Yes that sort of exhausted me mentally and physically (participant 26, 52 year old language teacher)
A change in job demands		• Job insecurity • Discrimination • Pressure to continue working • Emotional demands • Physical demands • Mental demands • Workload • Negative atmosphere in the team • Flexibility in scheduling	This code is applied when participants indicated that job demands changed. Job demands are defined as "physical, psychological, social, or organizational aspects of the job that require sustained physical and/or psychological (cognitive and emotional) effort or skills and are therefore associated with certain physiological and/or psychological costs" (Bakker and Demerouti, 2007, p. 312)	I had a director and that person was quite annoying to me when I started rehabilitating. At the first workday, she immediately came out big. It took a lot of energy for me because I constantly had to put my feet up and I was walking on crotches and I was crazy enough to start working because I really wanted to and I did not want to be weak. I remember here calling me at night, very angry because I missed a meeting at the end of the day that went on until six. I said yes I am sorry, I needed all my energy to get through today and then you get a phone call like that. My ability decreased a lot after that (participant 18, 60 year old teacher)
A change in home demands		• Taking care of family members	This code is applied when participants indicated that home demands changed. Home demands refer to those family obligations that require physical or psychological costs.	That fell back when the children came, because that is both physically and mentally pretty demanding. You are out of the running for quite a while (participant 18, 60 year old teacher)

A change in person-environment fit			The degree to which the individual and the work are well matched (Kristof-Brown, Zimmerman, & Johnson, 2005)	
	Demands-abilities fit	• Demands-abilities fit • Demands-abilities misfit	The degree to which the knowledge, skills, and abilities of an individual match with the demands of the job (Kristof-Brown, Zimmerman, & Johnson, 2005)	Yes, here I transferred to another company and I got offered the position of chief HRM, but that was a bad decision because it was a company where very little attention was being paid to HRM. HRM did not go further than the pay slip so that was very difficult. To get a company in a different mindset, I am simply not the right person so do that and I also did not feel like just going with the crowd. That resulted in a burn-out for me (participant 7, 63 year old absenteeism specialist) Then we started working in a different way and that way suited me very well. That different way of working. We were no longer working with one secretary per specialist, but we were all working together for all the doctors. Because of that you got a whole different set of responsibilities and your job became very diverse because of that (participant 4, 57 year old medical assistant) It was only when I started working for the university of applied science that I was truly

				working on my own level and under an employer (participant 18, 60 year old teacher)
	Need-supplies fit	• Needs-supplies fit • Needs-supplies misfit	The degree to which the needs of the individual match with what the organization supplies (Kristof-Brown, Zimmerman, & Johnson, 2005)	I think I accepted a job here that did not fit me, and I should maybe have asked for help. There was someone working there who was already working there for 40 years and who did not support me at all, let me frame it like that. Even though it was intended to be that way. I was supposed to take over some of the work, but he pulled everything towards himself and was very scared to share anything. And management, well... They knew that and they probably hoped that I could fix this for them, but I am not like that (participant 7, 63 year old absenteeism specialist) I always felt like I belonged there, good supervision, great coworkers who always supported me (participant 4, 57 year old medical assistant)
	Person-organization fit	• Person-organization fit • Person-organization misfit	The degree to which the person is compatible with the organization (Kristof-Brown, Zimmerman, & Johnson, 2005)	I was new, that girl worked there for 9 years and the guy worked there for 15 years. So I had a huge backlog on those two. They were a duo, and I was the third one. Well you know the saying… (participant 32, 51 year old salesman) Also, the people that worked were just completely different, a different type, and I just did not fit

				with that type. Not that I am better than them or anything (participant 15, 57 year old nurse)
Need for HR practices	Accommodative practices	• Part-time work • Additional leave • Demotion • Early retirement • Reduced workload	This code is applied when participants indicated that HR practices that are aimed at assisting employees to function at a lower level when it is no longer possible to regain former performance levels (Kooij et al., 2014) were desired but not received	I really wanted to work part-time back then. And at that time they were really fussy about that. Together with a colleague, together actually, we wanted to split that job. Well at that time they just did not want to do that. That was a real shame. Then I had to resign and I stayed at home for four years even though I did not really want that (participant 4, 57 year old medical assistant) They could have just asked me what I needed to do my job. I would have told them that I needed a strong person next to me who could think along and take over some of my tasks (participant 1, 61 year old daycare employee)
	Utilization practices	• Participation • Task enrichment	This code is applied when participants indicated that HR practices that are aimed at making use of the specific experience, knowledge, and competences that older workers have (Kooij et al., 2014) were desired but not received	It became more and more like a big machine and your tasks and hour division were being made for you, and you had no say in that at all. That was very frustrating to me (participant 18, 60 year old teacher) I would have joined if they had allowed me to participate, you know. If they would have involved me in the action plan. Now I think, well if they are just going to change I will just leave (participant 14, 57 year old nurse)

	Maintenance practices	• Ergonomic adjustments to the workplace • Performance appraisal	This code is applied when participants indicated that HR practices that are aimed at helping employees in sustaining their performance despite the possible negative effects of career shocks (Kooij et al., 2014) were desired but not received	Yes, it was a big endeavor but they did not tell me any way 'well we are thinking about it and you are thinking about it and we just continue working and in two weeks we will have another evaluating'. We had one. One evaluation and immediately exit. That was it. In the meantime they may have given some signals like 'come on' and 'pretend like you enjoy it', but they were not joking (participant 32, 51 year old salesman)
	Developmental practices	• Career planning • Training • Knowledge sharing	This code is applied when participants indicated that HR practices that are aimed at helping workers to improve their performance (Kooij et al., 2014) were desired but not received	Lately I really feel like I need some supervision, or career planning really (participant 26, 52 year old language teacher) Yes, actually I would have liked the opportunity to develop myself but that was not possible there (participant 7, 63 year old absenteeism specialist)
	Job resources	• Autonomy • Recognition • Transparency	This code is applied when were desired but not received. Job resources are defined as "physical, psychological, social, or organizational aspects of the job that are either/or functional in achieving work goals, reduce job demands and the associated physiological and psychological costs and stimulate personal growth, learning, and development" (Bakker and Demerouti, 2007, p. 312)	You just feel completely abandoned. Actually, it is like this, you got an accident at work because they were at fault and then you started working too soon because of bad advice from the company doctor because of which you end up in bed again. Actually, you got to this point because of inability of your employer twice, than you are working very hard to recover and on top of that they kick you for the third time, yes sorry you have been sick for two years now so you have to leave. That really is not nice to hear. I could have gotten a

				burnout, but with me it works the other way around. I will show you what I am capable of (participant 9, 51 year old nurse) Yes, the responses from school. You expect that your manager will call you every few months to ask you how you are doing. But that did not come from school. And I thought that was a bit of a shame. And especially when you ask why your director never calls you. Yes than they tell you we told him to do so and he still does not do it. That was a shame (participant 5, 62 year old music teacher)
Person variables		• Age • Willingness to go back in salary • Perseverance • Stuttering • Positive mindset • Flexibility • Difficulties with saying no • Lack of confidence • Self-efficacy		Yes strength wise I did decline over the years with age (participant 10, 61 year old firefighter) Uh, well I suffer from stuttering, so that makes it difficult to find a job (participant 27,65 year old innovation consultant)